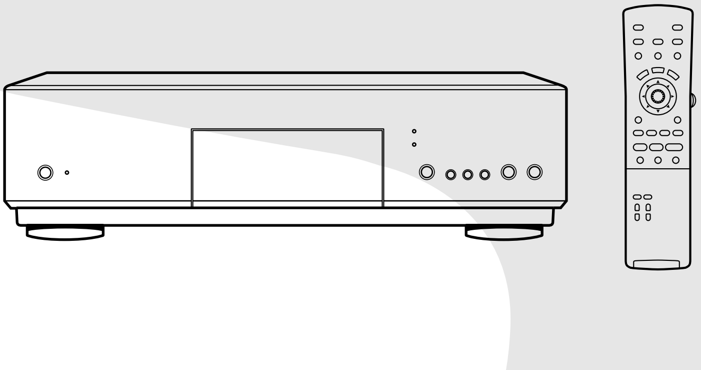
TOSHIBA

FILE NO. 810-200014

SERVICE MANUAL

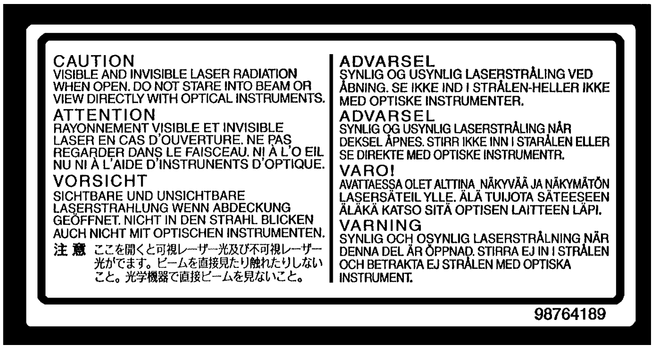
DVD VIDEO PLAYER

SD-9200



Sep., 2000 Ⓢ

LASER BEAM CAUTION LABEL



CAUTION
VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.

ATTENTION
RAYONNEMENT VISIBLE ET INVISIBLE LASER EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU. NI À L'O EIL NU NI À L'AIDE D'INSTRUNENTS D'OPTIQUE.

VORSICHT
SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET. NICHT IN DEN STRAHL BLICKEN AUCH NICHT MIT OPTISCHEN INSTRUMENTEN.

注 意 ここを開くと可視レーザー光及び不可視レーザー光がでます。ビームを直接見たり触れたりしないこと。光学機器で直接ビームを見ないこと。

ADVARSEL
SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. SE IKKE IND I STRÅLEN-HELLER IKKE MED OPTISKE INSTRUMENTER.

ADVARSEL
SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. STIRR IKKE INN I STARÅLEN ELLER SE DIREKTE MED OPTISKE INSTRUMENTR.

VARO!
AVATTAESSA OLET ALTTINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEIL YLLE. ÄLÄ TUIJOTA SÄTEESEEN ÄLÄKÄ KATSO SITÄ OPTISEN LAITTEEN LÄPI.

VARNING
SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STIRRA EJ IN I STRÅLEN OCH BETRAKTA EJ STRÅLEN MED OPTISKA INSTRUMENT.

98764189

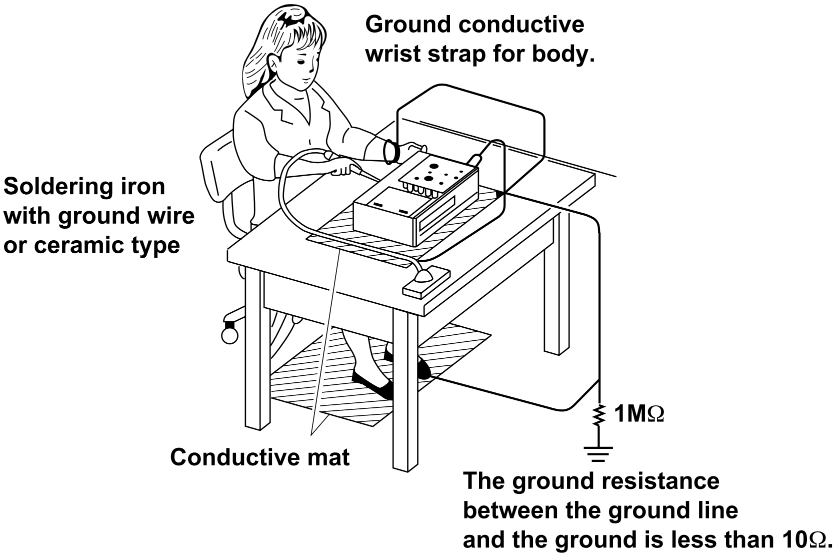
When the power supply is being turned on, you may not remove this laser cautions label. If it removes, radiation of a laser may be recceived.

PREPARATION OF SERVICING

Pickup Head consists of a laser diode that is very susceptible to external static electricity.

Although it operates properly after replacement, if it was subject to electrostatic discharge during replacement, its life might be shortened. When replacing, use a conductive mat, soldering iron with ground wire, etc. to protect the laser diode from damage by static electricity.

And also, the LSI and IC are same as above.


Ground conductive wrist strap for body.
Soldering iron with ground wire or ceramic type
1MΩ
Conductive mat
The ground resistance between the ground line and the ground is less than 10Ω.

SAFETY NOTICE

SAFETY PRECAUTIONS

LEAKAGE CURRENT CHECK

Plug the AC line cord directly into a 120V AC outlet (do not use an isolation transformer for this check). Use an AC voltmeter, having 5000 Ω per volt or more sensitivity.

Connect a 1500 Ω 10 W resistor, paralleled by a 0.15 µF 150V AC capacitor between a known good earth ground (water pipe, conduit, etc.) and all exposed metal parts of cabinet (antennas, handle bracket, metal cabinet screwheads, metal overlays, control shafts, etc.).

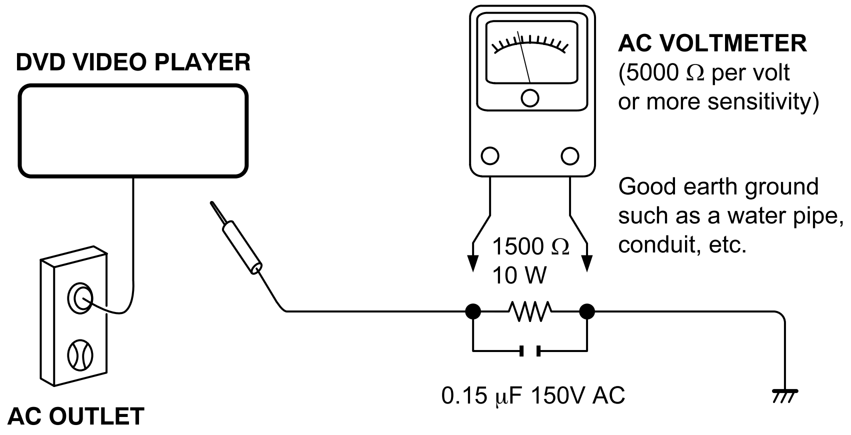
Measure the AC voltage across the 1500 Ω resistor.

The test must be conducted with the AC switch on and then repeated with the AC switch off. The AC voltage indicated by the meter may not exceed 0.3 V. A reading exceeding 0.3 V indicates that a dangerous potential exists, the fault must be located and corrected.

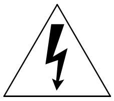
Repeat the above test with the DVD VIDEO PLAYER power plug reversed.

NEVER RETURN A DVD VIDEO PLAYER TO THE CUSTOMER WITHOUT TAKING NECESSARY CORRECTIVE ACTION.

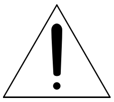
READING SHOULD NOT EXCEED 0.3V



Test all exposed metal.
Voltmeter Hook-up for Leakage Current Check



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

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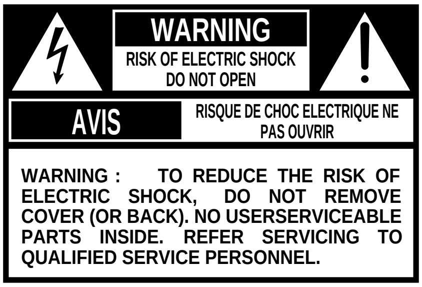
5. PARTS LIST

SECTION 1
GENERAL DESCRIPTIONS

1. OPERATING INSTRUCTIONS

SAFETY PRECAUTIONS



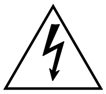
WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

AVIS

RISQUE DE CHOC ELECTRIQUE NE
PAS OUVRIR

WARNING : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USERSERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



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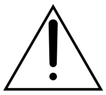


The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: **TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.**

CAUTION: **TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.**

ATTENTION: **POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU’AU FOND.**

CAUTION: This Digital Video Disc Player employs a Laser System.
To ensure proper use of this product, please read this owner’s manual carefully and retain for future reference. Should the unit require maintenance, contact an authorized service location - see service procedure.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

To prevent direct exposure to laser beam, do not try to open the enclosure.
Visible and invisible laser radiation when open and interlocks defeated.
DO NOT STARE INTO BEAM.

FCC NOTICE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rule. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications made to this equipment, not expressly approved by Toshiba, or parties authorized by Toshiba, could void the user’s authority to operate the equipment.

In the spaces provided below, record the Model and Serial No. located on the rear panel of your DVD player.

Model No. ____________________ Serial No. ____________________

Retain this information for future reference.

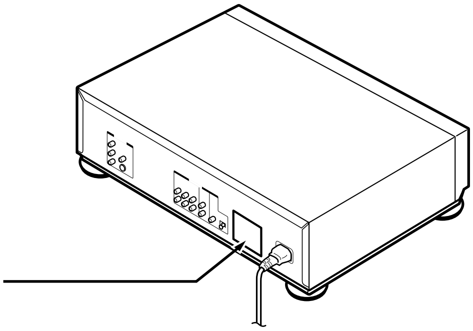
Location of the required label

PRODUCT IS CERTIFIED BY THE MANUFACTURER TO COMPLY WITH DHHS RULE 21 CFR SUBCHAPTER J APPLICABLE AT THE DATE OF MANUFACTURE.

MANUFACTURED

TOSHIBA CORPORATION

1-1,SHIBAURA 1-CHOME,MINATO-KU.
TOKYO 105-8001,JAPAN

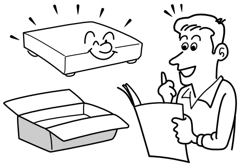


IMPORTANT SAFETY INSTRUCTIONS

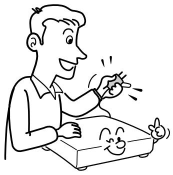
CAUTION: PLEASE READ AND OBSERVE ALL WARNINGS AND INSTRUCTIONS GIVEN IN THIS OWNER'S MANUAL AND THOSE MARKED ON THE UNIT. RETAIN THIS BOOKLET FOR FUTURE REFERENCE.

This set has been designed and manufactured to assure personal safety. Improper use can result in electric shock or fire hazard. The safeguards incorporated in this unit will protect you if you observe the following procedures for installation, use and servicing. This unit is fully transistorized and does not contain any parts that can be repaired by the user.
DO NOT REMOVE THE CABINET COVER, OR YOU MAY BE EXPOSED TO DANGEROUS VOLTAGE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY.

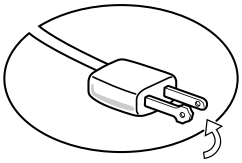
1. Read owner's manual
   After unpacking this product, read the owner's manual carefully, and follow all the operating and other instructions.



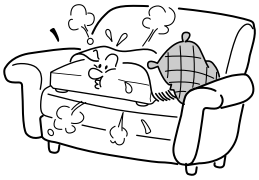
2. Power Sources
   This product should be operated only from the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.



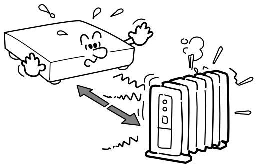
3. Grounding or Polarization
   This product may be equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.



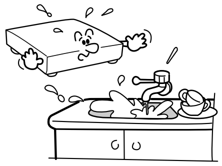
4. Ventilation
   Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.



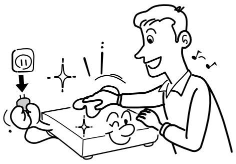
5. Heat
   The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.



6. Water and Moisture
   Do not use this product near water - for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool and the like.

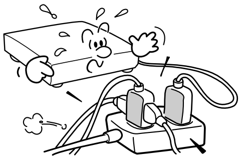


7. Cleaning
   Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

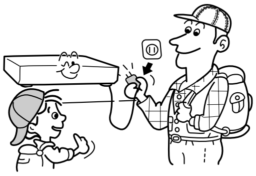


8. Power-Cord Protection
   Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

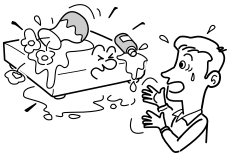
9. Overloading
   Do not overload wall outlets; extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.



10. Lightning
    For added protection for this product during storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damage to the product due to lightning and power-line surges.



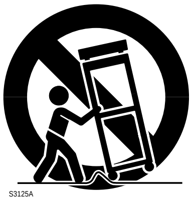
11. Object and Liquid Entry
    Never insert objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.



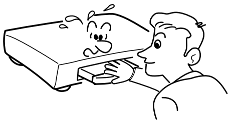
12. Attachments
    Do not use attachments not recommended by the product manufacturer as they may cause hazards.

IMPORTANT SAFETY INSTRUCTIONS

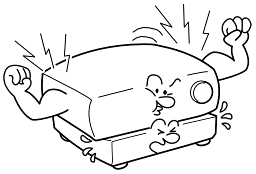
13. Accessories
    Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
    A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.



14. Disc Tray
    Keep your fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.

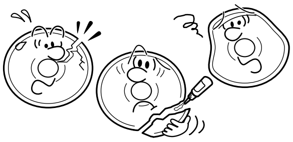


15. Burden
    Do not place a heavy object on or step on the product. The object may fall, causing serious personal injury and serious damage to the product.



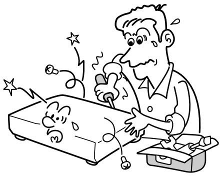
16. Headphones
    When you use headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

17. Disc
    Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.



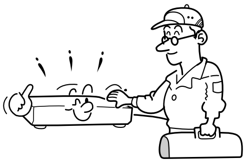
18. Damage Requiring Service
    Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    a) When the power-supply cord or plug is damaged.
    b) If liquid has been spilled, or objects have fallen into the product.
    c) If the product has been exposed to rain or water.
    d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
    e) If the product has been dropped or damaged in any way.
    f) When the product exhibits a distinct change in performance - this indicates a need for service.

19. Servicing
Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.



20. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

21. Safety Check
Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.



Precautions

Notes on handling

- When shipping the DVD player, the original shipping carton and packing materials come in handy. For maximum protection, repack the unit as it was originally packed at the factory.
- Do not use volatile liquids, such as insect spray, near the DVD player. Do not leave rubber or plastic products in contact with the DVD player for a long time. They will leave marks on the finish.
- The top and rear panels of the DVD player may become warm after a long period of use. This is not a malfunction.
- When the DVD player is not in use, be sure to remove the disc and turn off the power.
- If you do not use the DVD player for a long period, the unit may not function properly in the future. Turn on and use the DVD player occasionally.

Notes on locating

- Place the DVD player on a level surface. Do not use it on a shaky or unstable surface such as a wobbling table or inclined stand. The loaded disc may come off the proper position and cause damage to the DVD player.
- When you place this DVD player near a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. In this case, place the DVD player away from the TV, radio, or VCR.

Notes on cleaning

Use a soft, dry cloth for cleaning.

- For stubborn dirt, soak the cloth in a weak detergent solution, wring well and wipe. Use a dry cloth to wipe it dry.
  Do not use any type of solvent, such as thinner and benzine, as they may damage the surface of the DVD player.
- If you use a chemical saturated cloth to clean the unit, follow that product’s instructions.

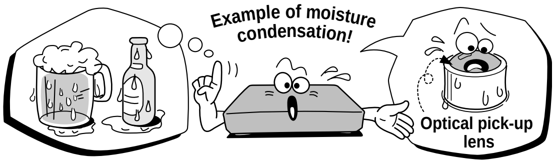
To obtain a clear picture

The DVD player is a high technology, precision device. If the optical pick-up lens and disc drive parts are dirty or worn down, the picture quality becomes poor. To obtain a clear picture, we recommend regular inspection and maintenance (cleaning or parts replacement) every 1,000 hours of use depending on the operating environment. For details, contact your nearest dealer.

Notes on moisture condensation

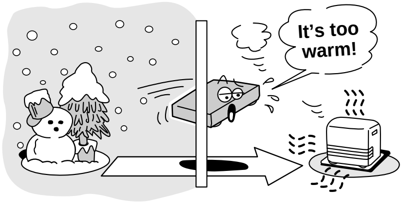
Moisture condensation damages the DVD player. Please read the following carefully.

Moisture condensation occurs, for example, when you pour a cold drink into a glass on a warm day. Drops of water form on the outside of the glass. In the same way, moisture may condense on the optical pick-up lens inside this unit, one of the most crucial internal parts of the DVD player.



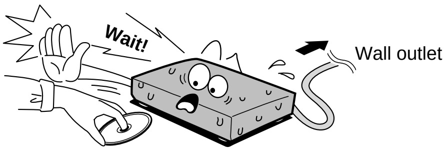
- **Moisture condensation occurs during the following cases.**

- When you bring the DVD player directly from a cold place to a warm place.
- When you use the DVD player in a room where you just turned on the heater, or a place where the cold wind from the air conditioner directly hits the unit.
- In summer, when you use the DVD player in a hot and humid place just after you move the unit from an air conditioned room.
- When you use the DVD player in a humid place.


It’s too warm!

- **Do not use the DVD player when moisture condensation may occur.**

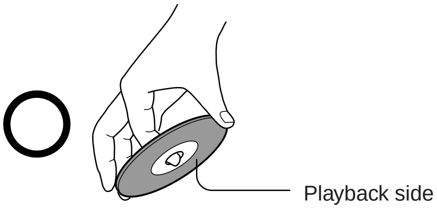
  If you use the DVD player in such a situation, it may damage discs and internal parts. Remove the disc, connect the power cord of the DVD player to the wall outlet, turn on the DVD player, and leave it for two or three hours. After two or three hours, the DVD player will have warmed up and evaporated any moisture. Keep the DVD player connected to the wall outlet and moisture condensation will seldom occur.



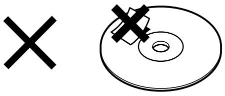
Notes on Discs

On handling discs

- Do not touch the playback side of the disc.

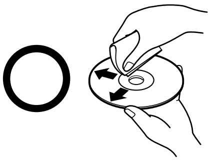


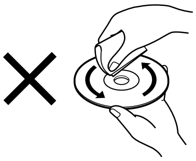
- Do not attach paper or tape to discs.



On cleaning discs

- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outwards with a soft cloth. Always keep the disc clean.





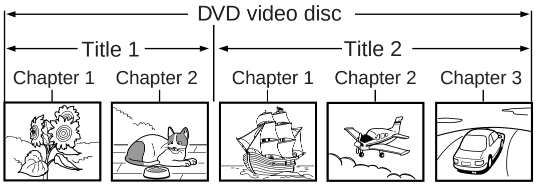
- If you cannot wipe off the dust with a soft cloth, wipe the disc lightly with a slightly moistened soft cloth and finish with a dry cloth.
- Do not use any type of solvent such as thinner, benzine, commercially available cleaners or antistatic spray for vinyl LPs. It may damage the disc.

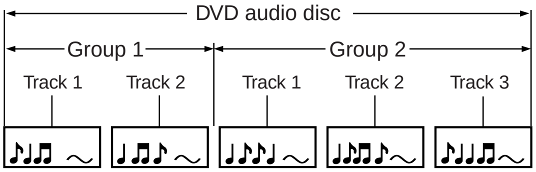
On storing discs

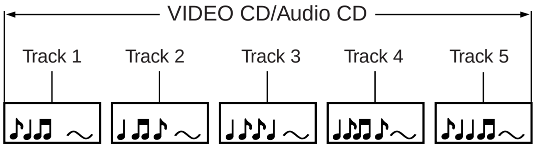
- Do not store discs in a place subject to direct sunlight or near heat sources.
- Do not store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Store discs vertically in a case. Stacking or placing objects on discs outside of their case may cause warping.

Structure of disc contents

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. DVD audio discs are divided into groups, and the groups are sub-divided into tracks. VIDEO CDs/audio CDs are divided into tracks.







Each title, chapter, group, or track is assigned a number, which is called “title number”, “chapter number”, “group number” or “track number” respectively.
There may be discs that do not have these numbers.

Notes on copyright

It is forbidden by law to copy, broadcast, show, broadcast on cable, play in public, and rent copyrighted material without permission.

DVD video discs are copy protected, and any recordings made from these discs will be distorted.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Notes on Discs (continued)

About this owner's manual

This owner's manual explains the basic instructions of this DVD player. Some DVD video discs are produced in a manner that allows specific or limited operation during playback. As such, the DVD player may not respond to all operating commands. This is not a defect in the DVD player. Refer to instruction notes of discs.

"🛇" may appear on the TV screen during operation.
A "🛇" means that the operation is not permitted by the DVD player or the disc.

Notes on region numbers

The region number of this DVD player is 1. If region numbers, which stand for their playable area, are printed on your DVD video disc and you do not find 1 or ALL , disc playback will not be allowed by the player. (In this case, the DVD player will display a message on-screen.)

On VIDEO CDs

This DVD player supports VIDEO CDs equipped with the PBC (Version 2.0) function. (PBC is the abbreviation of Playback Control.) You can enjoy two playback variations depending on types of discs.

- **VIDEO CD not equipped with PBC function (Version 1.1)**
  Sound and movie can be played on this DVD player in the same way as an audio CD.
- **VIDEO CD equipped with PBC function (Version 2.0)**
  In addition to operation of a VIDEO CD not equipped with the PBC function, you can enjoy playback of interactive software with search function by using the menu displayed on the TV screen (Menu Playback).
  Some of the functions described in this owner's manual may not work with some discs.

Playable discs

This DVD player can play the following discs.

	Disc Mark	Contents	Disc Size
DVD video discs	DVD VIDEO™ DVD VIDEO™	video (moving pictures) + Audio	12 cm
			8 cm
DVD audio discs	DVD AUDIO™	Audio	12 cm
			8 cm
VIDEO CDs	COMPACT disc DIGITAL VIDEO	video (moving pictures) + Audio	12 cm
			8 cm
Audio CDs	COMPACT disc DIGITAL AUDIO	Audio	12 cm
			8 cm (CD single)
The following discs are also available. ● CD-R ● CD-RW CD-R/RW discs recorded by CD-DA method can be played. Some CD-R/RW discs may be incompatible.			

- You cannot play discs other than those listed above.
- You cannot play discs of DVD-RAM, DVD-RW, etc., even if they may be labeled marks listed above.
- This DVD player uses the NTSC color system, and cannot play DVD video discs recorded in any other color system (PAL, SECAM, etc.).

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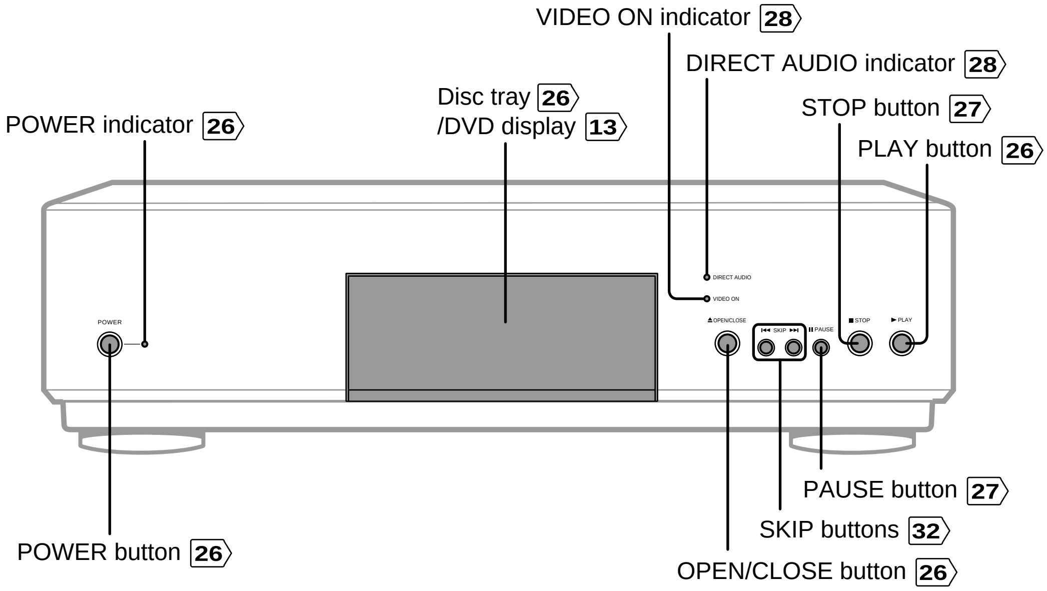
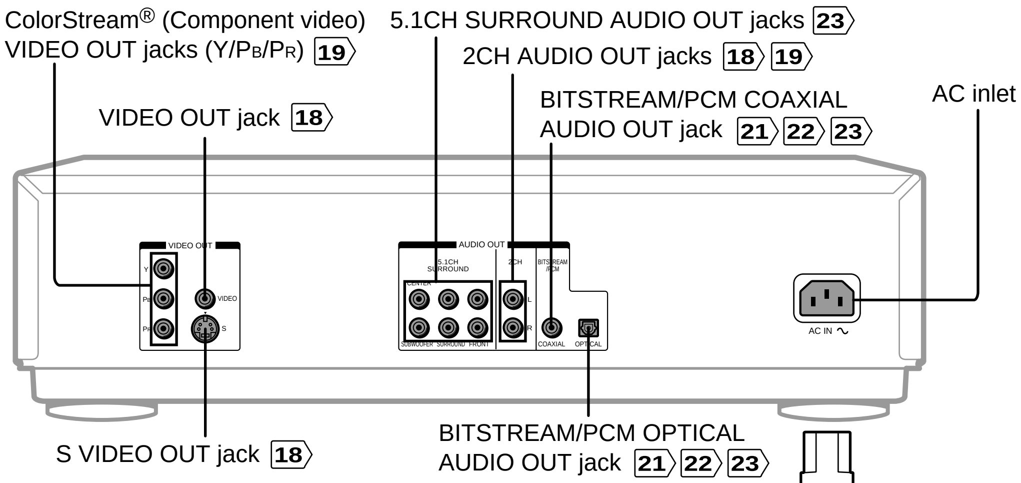
Identification of Controls

See the page in ⟩ for details.

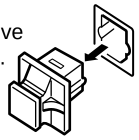
Front panel

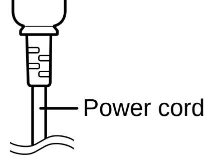

VIDEO ON indicator 28
DIRECT AUDIO indicator 28
Disc tray 26
/DVD display 13
POWER indicator 26
STOP button 27
PLAY button 26
POWER
DIRECT AUDIO
VIDEO ON
OPEN/CLOSE
SKIP
PAUSE
STOP
PLAY
PAUSE button 27
SKIP buttons 32
POWER button 26
OPEN/CLOSE button 26

Rear panel


ColorStream® (Component video)
VIDEO OUT jacks (Y/P_B/P_R) 19
5.1CH SURROUND AUDIO OUT jacks 23
2CH AUDIO OUT jacks 18 19
BITSTREAM/PCM COAXIAL
AUDIO OUT jack 21 22 23
AC inlet
VIDEO OUT jack 18
VIDEO OUT
Y
PB
PR
VIDEO
S
AUDIO OUT
5.1CH
SURROUND
CENTER
SUBWOOFER
SURROUND
FRONT
2CH
L
R
BITSTREAM
/PCM
COAXIAL
OPTICAL
AC IN
S VIDEO OUT jack 18
BITSTREAM/PCM OPTICAL
AUDIO OUT jack 21 22 23

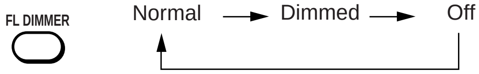
When connecting the optical digital cable, remove the cap and fit the connector into the jack firmly. When not using the jack, keep the cap inserted to protect it from dust intrusion.

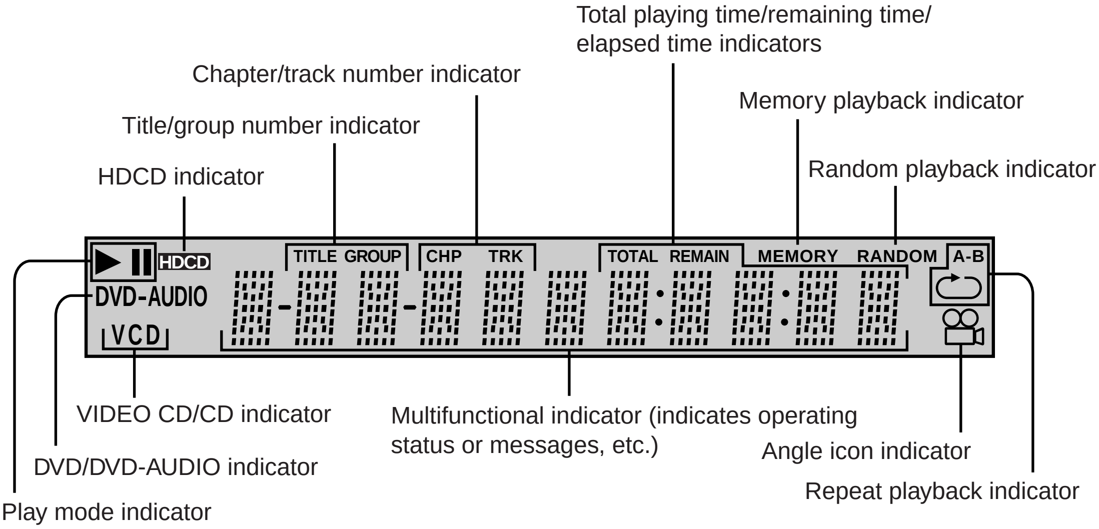




DVD display

■ **Repeated pressing of the FL DIMMER button on the remote control changes the brightness of the display.**


FL DIMMER
Normal
Dimmed
Off

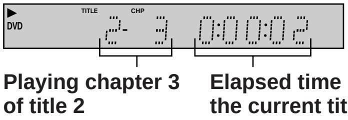

Total playing time/remaining time/ elapsed time indicators
Chapter/track number indicator
Memory playback indicator
Title/group number indicator
Random playback indicator
HDCD indicator
HDCD
TITLE GROUP
CHP TRK
TOTAL REMAIN
MEMORY
RANDOM
A-B
DVD-AUDIO
VCD
VIDEO CD/CD indicator
Multifunctional indicator (indicates operating status or messages, etc.)
Angle icon indicator
DVD/DVD-AUDIO indicator
Repeat playback indicator
Play mode indicator

The indicators vary depending on the kinds of discs you play.

DVD video disc

- During playback:

Example

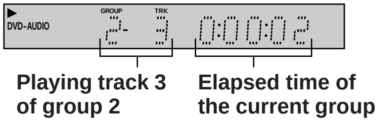

DVD
TITLE
CHP
2- 3
0:00:02
Playing chapter 3 of title 2
Elapsed time of the current title

- Some discs may not display chapter numbers.
- A time indication not accompanied with a chapter number shows elapsed time of a segment within the current title.

DVD audio disc

- During playback:

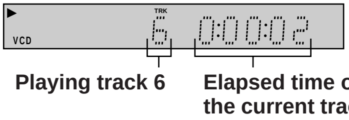
Example


DVD-AUDIO
GROUP
TRK
2- 3
0:00:02
Playing track 3 of group 2
Elapsed time of the current group

VIDEO CD

- During playback:

Example

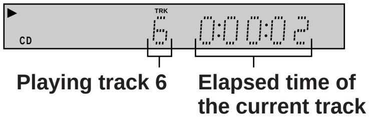

VCD
TRK
6
0:00:02
Playing track 6
Elapsed time of the current track

Some discs may not display track numbers or elapsed time.

Audio CD

- During playback:

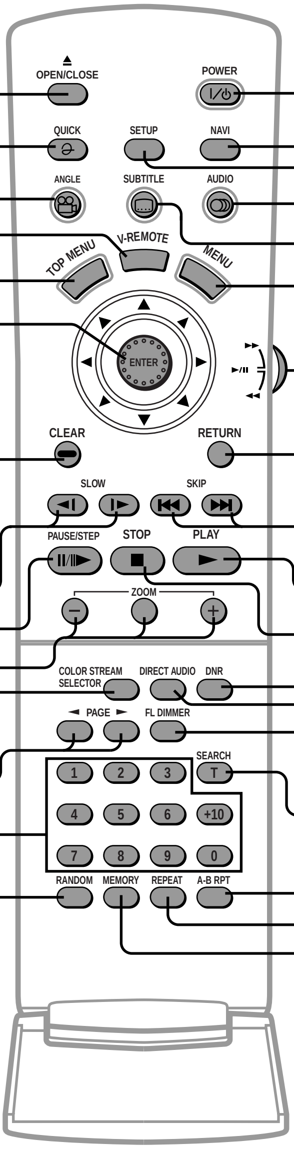
Example


CD
TRK
6
0:00:02
Playing track 6
Elapsed time of the current track

Identification of Controls (continued)

The instructions in this manual describe the functions on the remote control. See the page in ⟩ for details.

Remote control


OPEN/CLOSE
POWER
QUICK
SETUP
NAVI
ANGLE
SUBTITLE
AUDIO
V-REMOTE
TOP MENU
MENU
ENTER
CLEAR
RETURN
SLOW
SKIP
PAUSE/STEP
STOP
PLAY
ZOOM
COLOR STREAM SELECTOR
DIRECT AUDIO
DNR
PAGE
FL DIMMER
SEARCH
1
2
3
T
4
5
6
+10
7
8
9
0
RANDOM
MEMORY
REPEAT
A-B RPT

OPEN/CLOSE button 26

QUICK button 47

ANGLE button 40

V-REMOTE button 46

TOP MENU button 31

Cursor control/ENTER button 54
- Cursor control – to move the cursor
  Push toward the direction you want.
- ENTER button – to enter your selection
  Press the center vertically.

CLEAR button 32

SLOW buttons 30

PAUSE/STEP button 27 29

ZOOM buttons 38

COLOR STREAM SELECTOR button 19

PAGE buttons 28

Number buttons 32

RANDOM button 37

POWER button 26

NAVI button 48

SETUP button 54

AUDIO button 42

SUBTITLE button 41

MENU button*

Jog control 27 29

RETURN button 54

SKIP buttons 32

PLAY button 26

STOP button 27

DNR button 39

DIRECT AUDIO button 28

FL DIMMER button 13

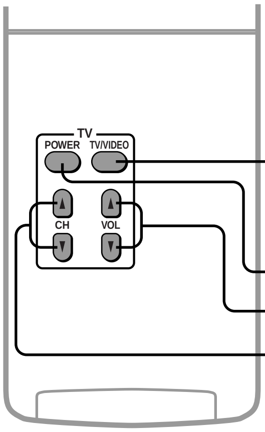
T button 32

A-B RPT button 35

REPEAT button 35

MEMORY button 36

Lift to open the cover.


TV
POWER
TV/VIDEO
CH
VOL

TV/VIDEO button 66

POWER button 66

VOL buttons 66

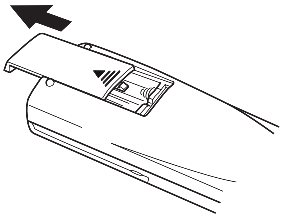
CH buttons 66

When closed

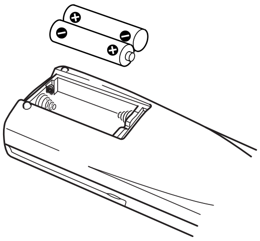
* **MENU button**
Use the MENU button to display the menu included on many DVD video discs. To operate a menu, follow the instructions in “Locating a title using the top menu.” 31

Loading batteries

1 Open the cover.

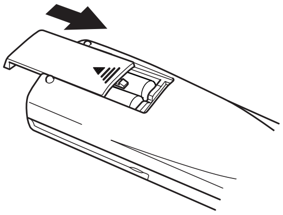


2 Insert batteries (AAA size).



Make sure to match the + and – on the batteries to the marks inside the battery compartment.

3 Close the cover.



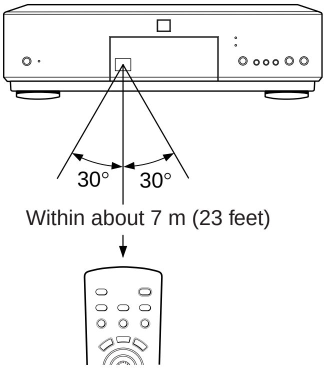
Notes on batteries

Improper use of batteries may cause battery leakage and corrosion. To operate the remote control correctly, follow the instructions below.

- Do not insert batteries into the remote control in the wrong direction.
- Do not charge, heat, open, or short-circuit the batteries. Do not throw batteries into a fire.
- Do not leave dead or exhausted batteries in the remote control.
- Do not use different types of batteries together, or mix old and new batteries.
- If you do not use the remote control for a long period of time, remove the batteries to avoid possible damage from battery corrosion.
- If the remote control does not function correctly or if the operating range becomes reduced, replace all batteries with new ones.
- If battery leakage occurs, wipe the battery liquid from the battery compartment, then insert new batteries.

Operating with the remote control

Point the remote control at the remote sensor and press the buttons.



Distance: About 7 m (23 feet) from the front of the remote sensor
Angle: About 30° in each direction of the front of the remote sensor

* Do not expose the remote sensor of the DVD player to a strong light source such as direct sunlight or other illumination. If you do so, you may not be able to operate the DVD player via the remote control.

Notes on the remote control

- Direct the remote control at the remote sensor of the DVD player.
- Do not drop or give the remote control a shock.
- Do not leave the remote control near an extremely hot or humid place.
- Do not spill water or put anything wet on the remote control.
- Do not open the remote control.

Connections

Read this chapter first to make all necessary preparations.

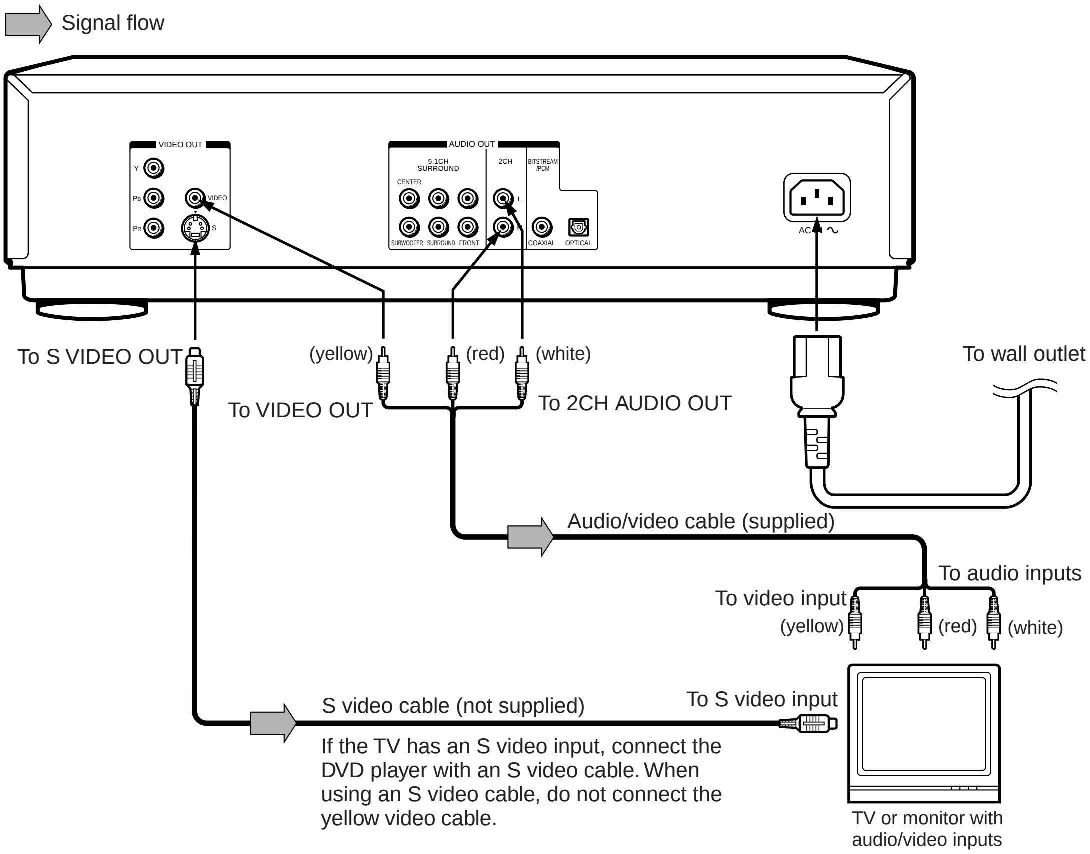
- **Connecting to a TV**
- **Connecting to an audio system and TV equipped with component video inputs**
- **Connecting to an amplifier equipped with a Dolby Digital decoder**
- **Connecting to an amplifier equipped with Dolby Pro Logic Surround**
- **Connecting to an amplifier equipped with a DTS decoder**
- **Connecting to an amplifier equipped with an MPEG2 audio decoder**
- **Connecting to an amplifier equipped with 5.1ch audio inputs**
- **Connecting to an amplifier equipped with a digital audio input**

Connecting to a TV

Connect the DVD player to your TV.

For details of output sound, see 43.

Connecting to a TV


Signal flow
VIDEO OUT
Y
PB
PR
VIDEO
S
AUDIO OUT
5.1CH SURROUND
CENTER
2CH
BITSTREAM /PCM
L
SUBWOOFER
SURROUND
FRONT
COAXIAL
OPTICAL
AC IN
To S VIDEO OUT
(yellow)
(red)
(white)
To VIDEO OUT
To 2CH AUDIO OUT
To wall outlet
Audio/video cable (supplied)
To audio inputs
To video input
(yellow)
(red)
(white)
S video cable (not supplied)
To S video input
TV or monitor with audio/video inputs

If the TV has an S video input, connect the DVD player with an S video cable. When using an S video cable, do not connect the yellow video cable.

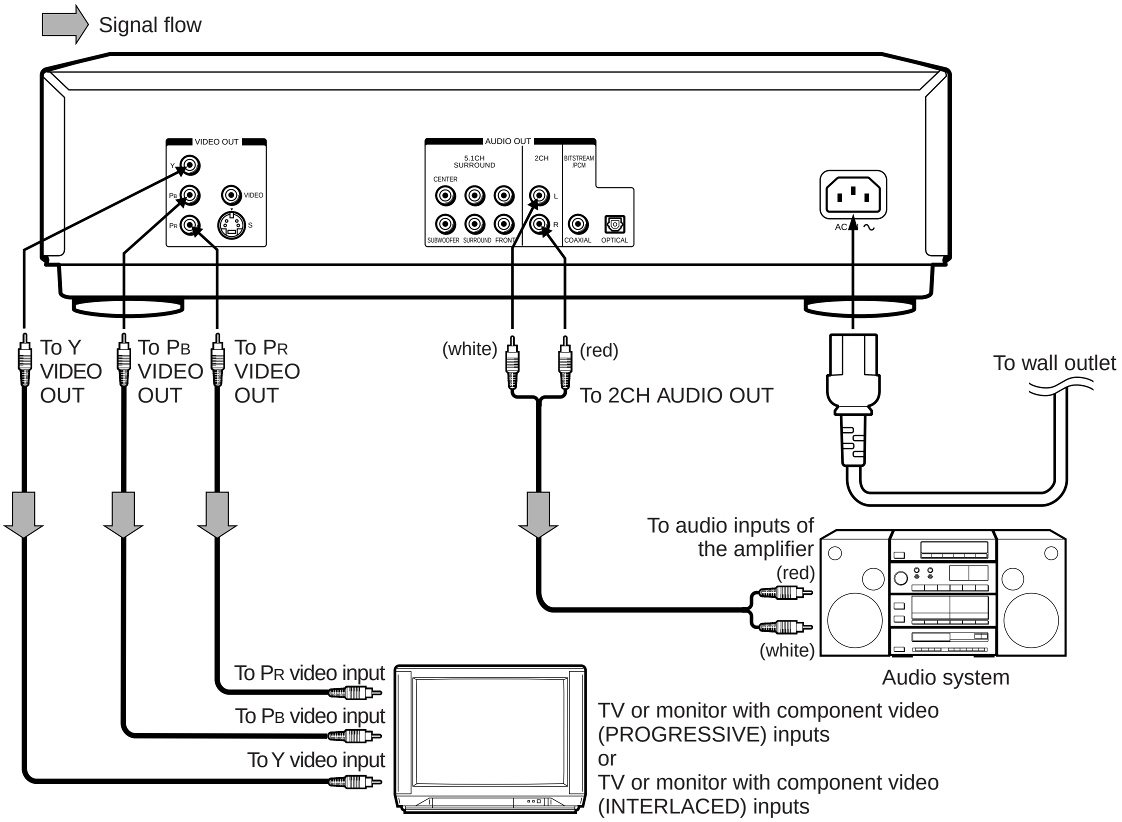
- Make the following setting.

On-screen display	Select:	Page
"Audio Out Select"	"Analog 2ch"	54 58

Notes

- Refer to the owner's manual of the connected TV as well.
- When you connect the DVD player to your TV, be sure to turn off the power and unplug both units from the wall outlet before making any connections.
- If your television set has one audio input, connect the DVD player to a Y cable adapter (not supplied) and then connect to your TV.
- Connect the DVD player directly to your TV. If you connect the DVD player to a VCR, TV/VCR combination or video selector, the playback picture may be distorted as DVD video discs are copy protected.

Connecting to an audio system and TV equipped with component video inputs


Signal flow
VIDEO OUT
Y
PB
PR
VIDEO
S
AUDIO OUT
5.1CH SURROUND
CENTER
SUBWOOFER
SURROUND
FRONT
2CH
L
R
BITSTREAM /PCM
COAXIAL
OPTICAL
AC ~
To Y VIDEO OUT
To PB VIDEO OUT
To PR VIDEO OUT
(white)
(red)
To 2CH AUDIO OUT
To wall outlet
To audio inputs of the amplifier
(red)
(white)
Audio system
To PR video input
To PB video input
To Y video input

TV or monitor with component video (PROGRESSIVE) inputs
or
TV or monitor with component video (INTERLACED) inputs

- Make the following setting.

On-screen display	Select:	Page
“Audio Out Select”	“Analog 2ch”	54 58

PROGRESSIVE outputs/inputs (ColorStream®Pro)
Some TVs or monitors are equipped with component video inputs that are capable of reproducing a progressively scanned video signal. Connecting to these inputs allows you to view the highest quality pictures with less flicker.

INTERLACED outputs/inputs (ColorStream®)
Some TVs or monitors are equipped with component video inputs. Connecting to these inputs allows you to enjoy higher quality picture playback.
Actual labels for component video inputs may vary depending on the TV manufacturer. (ex. Y, R-Y, B-Y or Y, CB, CR)
In some TVs or monitors, the color levels of the playback picture may be reduced slightly or the tint may change. In such a case, adjust the TV or monitor for optimum performance.

■ To switch the output signal (Progressive/Interlaced)

Press **COLOR STREAM SELECTOR** on the remote control.
The output signal alternates between component progressive and component interlaced.

Notes

- Refer to the owner’s manual of the connected equipment as well.
- When you connect the DVD player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- If you place the DVD player near a tuner or radio, the radio broadcast sound might be distorted. In this case, place the DVD player away from the tuner and radio.
- The output sound of the DVD player has a wide dynamic range. Be sure to adjust the receiver’s volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD player’s power cord. If you leave the amplifier power on, the speakers may be damaged.

Connecting to Optional Equipment

You can enjoy high quality dynamic sounds by connecting the DVD player to optional audio equipment.

- For connection to your TV, see “Connecting to a TV” 18〉 19〉.
- For details of output sound, see 43〉.
- This section uses the following reference marks.

■ : Front speaker

▨ : Rear speaker

◫ : Sub woofer

◧ : Center speaker

⇨ : Signal flow

Notes

- DO NOT connect the BITSTREAM/PCM AUDIO OUT jack of the DVD player to the AC-3 RF input of a Dolby Digital Receiver. This input on your A/V Receiver is reserved for Laserdisc use only and is incompatible with the BITSTREAM/PCM AUDIO OUT jack of the DVD player.
- Connect the BITSTREAM/PCM AUDIO OUT jack of the DVD player to the “OPTICAL” or “COAXIAL” input of a Receiver or Processor.
- Refer to the owner’s manual of the connected equipment as well.
- When you connect the DVD player to other equipment, be sure to turn off the power and unplug all of the equipment from the wall outlet before making any connections.
- The output sound of the DVD player has a wide dynamic range. Be sure to adjust the receiver’s volume to a moderate listening level. Otherwise, the speakers may be damaged by a sudden high volume sound.
- Turn off the amplifier before you connect or disconnect the DVD player’s power cord. If you leave the amplifier power on, the speakers may be damaged.

Warning

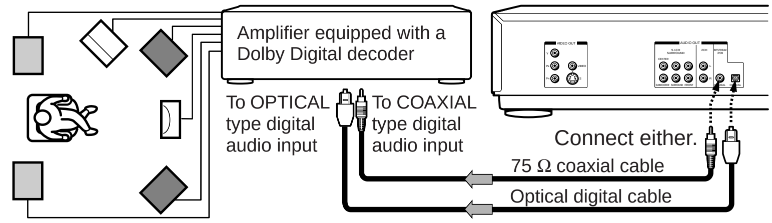
- When you are connecting (via the BITSTREAM/PCM AUDIO OUT jack) an AV decoder that does not have Dolby Digital, Digital Theater Systems (DTS) or MPEG2 decoding function, be sure to set “Audio Out Select” to “PCM” from the on-screen displays 54〉 58〉. Otherwise, high volume sound may damage your hearing as well as the speakers.
- When playing DTS-encoded discs (DVD video discs and audio CDs), excessive noise may be output from the analog stereo jacks. To avoid possible damage to the audio system, you should take proper precautions when the 2CH AUDIO OUT jacks of the DVD player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1 channel DTS Digital Surround™ decoder system must be connected to the BITSTREAM/PCM AUDIO OUT jack of the DVD player.

■ To play DVD audio discs

It is recommended that you connect your amplifier via the 2CH AUDIO OUT (L/R) jacks or the 5.1CH SURROUND AUDIO OUT jacks of the DVD player.
If you connect it via the BITSTREAM/PCM AUDIO OUT jack, you cannot obtain the full benefit of DVD audio sound.

Connecting to an amplifier equipped with a Dolby Digital decoder

Dolby Digital
Dolby Digital is the surround sound technology used in theaters showing the latest movies, and is now available to reproduce this realistic effect in the home. You can enjoy motion picture and live concert DVD video discs with this dynamic realistic sound by connecting the DVD player to a 6 channel amplifier equipped with a Dolby Digital decoder or Dolby Digital processor. If you have a Dolby Pro Logic Surround decoder, you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1-channel Dolby Digital soundtracks, as well as from titles with the Dolby Surround mark.


Amplifier equipped with a Dolby Digital decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable

Manufactured under license from Dolby Laboratories. “Dolby”, “Pro Logic” and the double-D symbol are trademarks of Dolby Laboratories. Confidential unpublished works. ©1992-1997 Dolby Laboratories. All rights reserved.

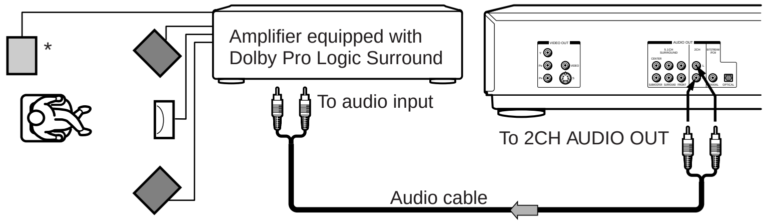
- Use DVD video discs encoded via the Dolby Digital recording system.
- Make the following setting.

On-screen display	Select:	Page
“Audio Out Select”	“Bitstream”	54 58
Recording system	DD D	42

Connecting to an amplifier equipped with Dolby Pro Logic Surround

Dolby Pro Logic Surround
You can enjoy the dynamic realistic sound of Dolby Pro Logic Surround by connecting an amplifier and speaker system (right and left front speakers, a center speaker, and one or two rear speakers).

- ▪ With an amplifier equipped with Dolby Digital
  Connect the equipment the same way as described in “Connecting to an amplifier equipped with a Dolby Digital decoder.” Refer to that amplifier’s owner’s manual and set the amplifier so you can enjoy Dolby Pro Logic Surround sound.
- ▪ With an amplifier not equipped with Dolby Digital
  Connect the equipment as follows.


*
Amplifier equipped with Dolby Pro Logic Surround
To audio input
To 2CH AUDIO OUT
Audio cable

- Make the following setting.

On-screen display	Select:	Page
“Audio Out Select”	“Analog 2ch”	54 58

Be sure to set “Audio Out Select” to “Analog 2ch” when you enjoy sounds of Dolby Pro Logic Surround using this connection.

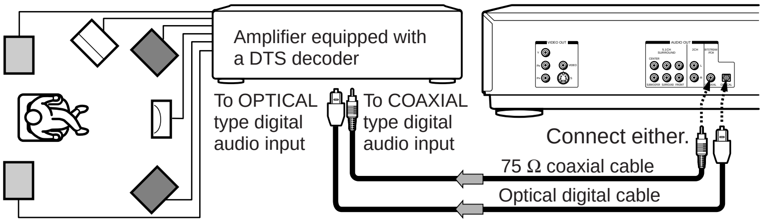
* Connect one or two rear speakers.
The output sound from the rear speakers will be monaural even if you connect two rear speakers.

Connecting to Optional Equipment (Continued)

Connecting to an amplifier equipped with a DTS decoder

Digital Theater Systems (DTS)
DTS is a high quality surround technology used in theaters and now available for home use, on DVD video discs or audio CDs.
If you have a DTS decoder or processor, you can obtain the full benefit of 5.1 channel DTS encoded sound tracks on DVD video discs or audio CDs.

“DTS” and “DTS Digital Surround” are trademarks of Digital Theater Systems, Inc.

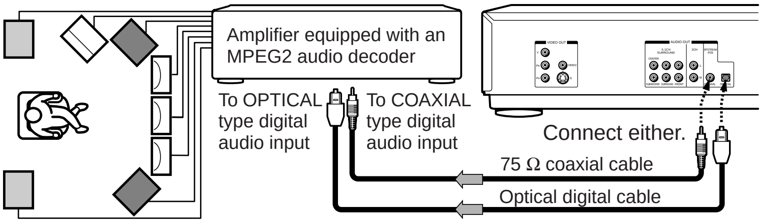

Amplifier equipped with a DTS decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable

- Use DVD video discs or audio CDs encoded via the DTS recording system.
- Make the following setting.

On-screen display	Select:	Page
“Audio Out Select”	“Bitstream”	54 58
Recording system	DTS	42

Connecting to an amplifier equipped with an MPEG2 audio decoder

MPEG2 sound
You can enjoy motion picture and live concert DVD video discs with dynamic realistic sound by connecting an amplifier equipped with an MPEG2 audio decoder or MPEG2 audio processor.

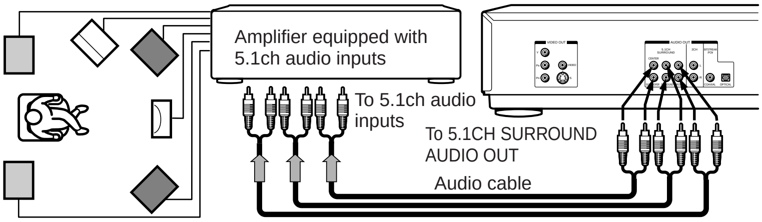

Amplifier equipped with an MPEG2 audio decoder
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable

- Use DVD video discs encoded via the MPEG2 recording system.
- Make the following setting.

On-screen display	Select:	Page
“Audio Out Select”	“Bitstream”	54 58
Recording system	MPEG	42

Connecting to an amplifier equipped with 5.1ch audio inputs

5.1ch surround sound
The Dolby Digital decoder equipped with this DVD player enables you to obtain the full benefit of 5.1 channel sound tracks when you connect the DVD player to an amplifier equipped with 5.1 channel audio inputs.


Amplifier equipped with 5.1ch audio inputs
To 5.1ch audio inputs
To 5.1CH SURROUND AUDIO OUT
Audio cable

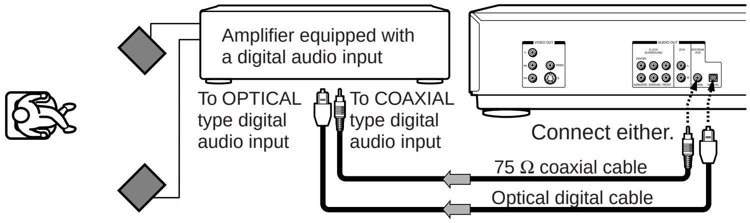
- Use DVD video discs encoded via the Dolby Digital recording system.
- Make the following setting.

On-screen display	Select:	Page
“Audio Out Select”	“Analog 6ch”	54 58
Recording system	DD D/MPEG	42

2 channel sound is output in the Dolby Pro Logic format. To obtain the original 2 channel sound, select “Analog 2ch.”

Connecting to an amplifier equipped with a digital audio input

2 channel digital stereo
You can enjoy the dynamic sound of 2 channel digital stereo by connecting an amplifier equipped with a digital audio input and speaker system (right and left front speakers).


Amplifier equipped with a digital audio input
To OPTICAL type digital audio input
To COAXIAL type digital audio input
Connect either.
75 Ω coaxial cable
Optical digital cable

- Make the following setting.

On-screen display	Select:	Page
“Audio Out Select”	“PCM”	54 58

Basic playback

Begin your operation.

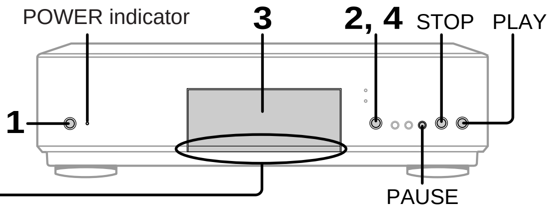
- Playing a Disc
- Variable Speed Playback
- Locating a Desired Section

Playing a Disc

This section shows you the basics on how to play a disc.

CAUTION
Keep your fingers well clear of the disc tray as it is closing. Neglecting to do so may cause serious personal injury.

Do not give an upward force to the disc tray or put an object under. Doing so may damage the disc tray mechanism, causing the DVD player to malfunction.



DVD-V DVD-A VCD CD Basic playback

Preparations

- When you want to view a disc, turn on the TV and select the video input connected to the DVD player.
- When you want to enjoy the sound of discs from the audio system, turn on the audio system and select the input connected to the DVD player.

1 Press POWER.

POWER ○

The DVD player turns on and the POWER indicator on the player illuminates.

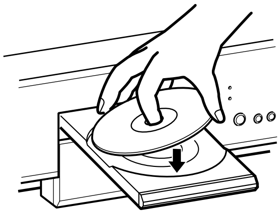
When the DVD player is turned on for the first time, a message appears. Press ENTER, and make the proper settings before proceeding to step 2. 64

2 Press OPEN/CLOSE.

⏏ OPEN/CLOSE ○

The disc tray opens.

3 Place a disc on the disc tray.



With the playback side down.

- There are two different disc sizes. Place the disc in the correct guide on the disc tray. If the disc is out of the guide, it may damage the disc and cause the DVD player to malfunction.
- Do not place a disc which is unplayable in this DVD player.

4 Press OPEN/CLOSE to close the disc tray.

⏏ OPEN/CLOSE ○

Playback starts.

DVD-V If you insert a DVD video disc that contains a top menu, a menu may appear. See “Locating a title using the top menu.” 31
You may need to press the TOP MENU or MENU button to display disc menu (depending on the actual DVD video disc.)

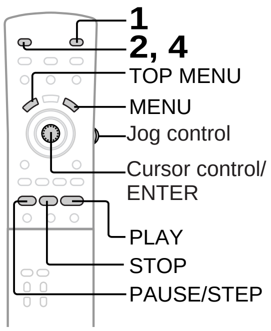
DVD-A A menu may appear depending on the disc. See “Locating a title using the top menu” 31.

Note
If the disc tray contains a disc you have already played, playback will begin from the location where you last stopped playback. 30

■ To start playback in the stop mode

Press **PLAY**.

► PLAY ○



To obtain a higher quality picture

Occasionally, some picture noise not usually visible during a normal broadcast may appear on the TV screen while playing a DVD video disc because the high resolution pictures on these discs include a lot of information. While the amount of noise depends on the TV you use with this DVD player, you should generally reduce the sharpness adjustment on your TV when viewing DVD video discs.

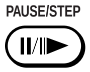
About DVD-V DVD-A VCD CD

The DVD-V DVD-A VCD CD icons on the heading bar show the playable discs for the function described under that heading.

DVD-V : DVD video discs.
DVD-A : DVD audio discs.
VCD : VIDEO CDs.
CD : Audio CD.

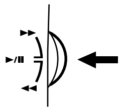
To pause playback (still mode)

Press **PAUSE/STEP** during playback.



To resume normal playback, press the PLAY button.

Alternatively press the **jog control** during normal playback.

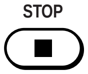


To resume normal playback, press the jog control again.

- Sound is muted during still mode.

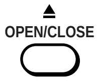
To stop playback

Press **STOP**.

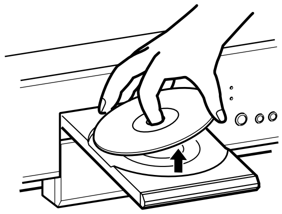


To remove the disc

Press **OPEN/CLOSE**.



Remove the disc after the disc tray opens completely.



Be sure to press the OPEN/CLOSE button to close the disc tray after you remove the disc.

About the screen saver

If you pause a picture of a DVD video disc and leave it still for a long while, the screen saver of the DVD player automatically appears (when “Screen Saver” is set to “On” 61). To turn off the screen saver, press the PLAY button.

Automatic Power Off function

If the DVD player is stopped, or the screen saver is engaged for approximately 20 minutes, the DVD player will automatically turn itself off.

HDCD (High Definition Compatible Digital®)

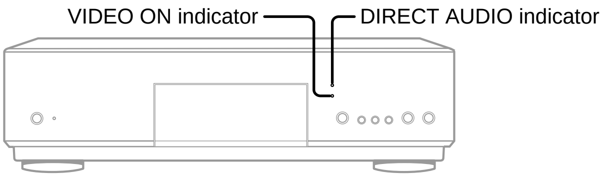
HDCD® (High Definition Compatible Digital®) is a recording system that has improved audio CD sound in dynamic range, sound field reproducibility and vocal acoustics.
This DVD player is equipped with an HDCD decoder. The HDCD indicator illuminates when playing an HDCD-encoded audio CD.

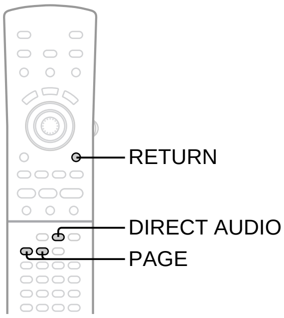
HDCD®, HDCD®, High Definition Compatible Digital® and Pacific Microsonics™ are either registered trademarks or trademarks of Pacific Microsonics, Inc. in the United States and/or other countries. HDCD system manufactured under license from Pacific Microsonics, Inc. This product is covered by one or more of the following patents: In the USA: 5,479,168, 5,638,074, 5,640,161, 5,808,574, 5,838,274, 5,854,600, 5,864,311, 5,872,531, and in Australia: 669114. Other patents pending.

Notes

- Do not move the DVD player during playback. Doing so may damage the disc.
- Use the OPEN/CLOSE button to open and close the disc tray. Do not push the disc tray while it is moving. Doing so may cause the DVD player to malfunction.
- Do not push up on the disc tray or put any objects other than discs on the disc tray. Doing so may cause the DVD player to malfunction.
- In many instances, a menu screen will appear after playback of a movie is completed. Prolonged display of an on-screen menu may damage your television set, permanently etching that image onto its screen. To avoid this, be sure to press the STOP button on your remote control once the movie is completed.

Playing a Disc (continued)





Basic playback (continued)

■ Still pictures included on DVD audio discs

DVD audio discs may include still pictures, which are classified into two large groups.

- Slideshow: Still pictures appear one after another automatically consistent with the disc program. They cannot be operated.
- Browsable pictures:
  You can display your favorite still picture selected with the buttons on the remote control. Some of those may change automatically.

: To select a picture. (The order of pictures vary depending on the disc)

: To return to a specific one programmed on the disc.

■ DIRECT AUDIO button

The DVD player can be set playing audio exclusively. In this case, you can obtain sound of better quality, as the DVD player does not process video signals. (All the video output jacks send no video signals.)

Press **DIRECT AUDIO** repeatedly.

DIRECT AUDIO

☼ DIRECT AUDIO
└── Lit : The DVD player plays audio signal only.
You can obtain sound of better quality.

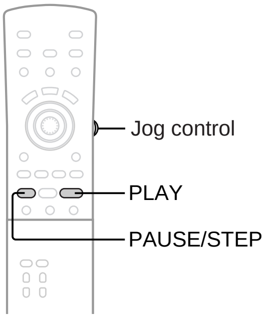
☼ VIDEO ON
└── Lit : The DVD player plays both video and audio signal.

Note

Some DVD audio discs may allow you to make selections on the screen. To operate them, turn on the VIDEO ON indicator so that video signals can be played.

Variable Speed Playback

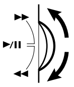
You can play discs at various speeds, and resume playback from the lacation where you stopped playback.



DVD-V DVD-A VCD CD

Playing in fast reverse or fast forward directions

During normal playback, move the jog control toward ▶▶ or ◀◀.

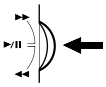


◀◀ : Fast reverse playback
▶▶ : Fast forward playback

Each time you move the jog control up or down, the playback speed changes.

■ To resume normal playback

Press **PLAY** or press the **jog control**.



Notes

- The DVD player mutes sound and omits subtitles during reverse and forward scan of DVD video discs.
- DVD audio discs may not be played in fast reverse or fast forward directions.
- The playback speed may differ depending on the disc.

DVD-V DVD-A VCD CD

Playing frame by frame

Press PAUSE/STEP during still playback.

Each time you press the PAUSE/STEP button, the picture advances one frame.

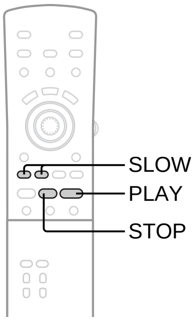
■ To resume normal playback

Press **PLAY**.

Notes

- The sound is muted during frame by frame playback.
- When using a DVD audio disc that includes pictures, this operation may be permitted in some picture segments.

Variable Speed Playback (continued)



DVD-V DVD-A VCD CD Playing in slow-motion

Press SLOW during playback.

Each time you press the SLOW I► button, the slow-motion speed changes.

If you press the SLOW ◄I button during playback, you can view the picture in reverse slow-motion. (Only when using a DVD video disc.)

Each time you press the SLOW ◄I button, the slow-motion speed changes.

■ To resume normal playback

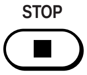
Press **PLAY**.

Notes

- The sound is muted during slow-motion playback.
- The playback speed may differ depending on the disc.
- When using a DVD audio disc that includes pictures, this operation may be permitted in some picture segments.

DVD-V DVD-A VCD CD Resuming playback from the same location

1 Press STOP at the location where you want to interrupt playback.



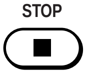
The DVD player memorizes the location where playback is stopped.

2 Press PLAY.

The DVD player resumes playback from the location where you stopped playback.

■ To start playback from the beginning regardless of the location where you stopped playback

1 Press **STOP** twice.



The DVD player's memory is cleared.

2 Press **PLAY**.

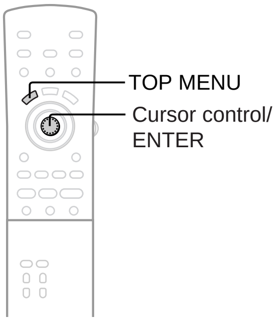
DVD-V	Playback starts from the beginning of the current title.
DVD-A	Playback starts from the beginning of the current group.
VCD CD	Playback starts from the beginning of the disc.

- If you want to return to the beginning of a DVD video/audio disc, open and close the disc tray once with the OPEN/CLOSE button before pressing the PLAY button.

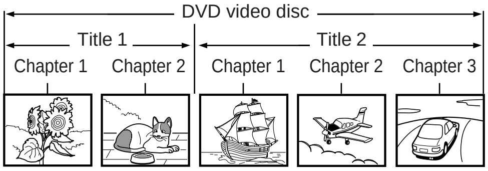
Notes

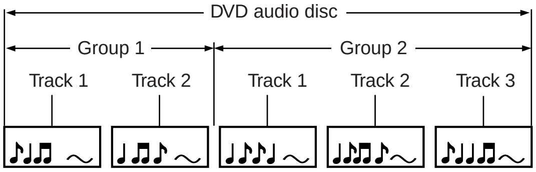
- The DVD player's memory is also cleared when:
  - –you unplug the DVD player from the wall outlet after you stop playback.
  - –you change the parental lock setting 62 or select a disc menu language 60.
  - –you open the disc tray.
- There may be a difference in the location where playback resumes depending on the disc. Especially when using a DVD audio disc, playback may resume from the beginning of the current track.
- Settings you changed using the on-screen displays while the DVD player keeps a location in the memory may function only after the memory is cleared.

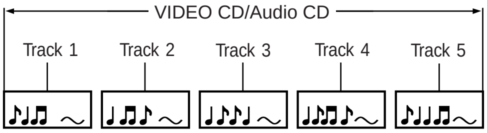
Locating a Desired Section


TOP MENU
Cursor control/
ENTER

Normally, DVD video discs are divided into titles, and the titles are sub-divided into chapters. DVD audio discs are divided into groups, and the groups are sub-divided into tracks. VIDEO CDs and audio CDs are divided into tracks. You can quickly locate any specific title, chapter, group, or track.


DVD video disc
Title 1
Title 2
Chapter 1
Chapter 2
Chapter 1
Chapter 2
Chapter 3


DVD audio disc
Group 1
Group 2
Track 1
Track 2
Track 1
Track 2
Track 3

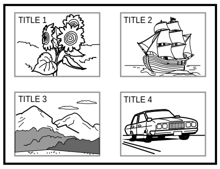

VIDEO CD/Audio CD
Track 1
Track 2
Track 3
Track 4
Track 5

DVD-V DVD-A VCD CD Locating a title using the top menu

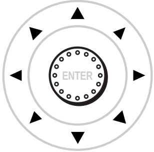
1 **Press TOP MENU.**

The top menu appears on the TV screen.

e.g.


TITLE 1
TITLE 2
TITLE 3
TITLE 4

2 **Select the title you want moving the cursor control.**



If the titles in the top menu are assigned a number, you can directly locate a specific title by pressing its designated number with the number buttons.

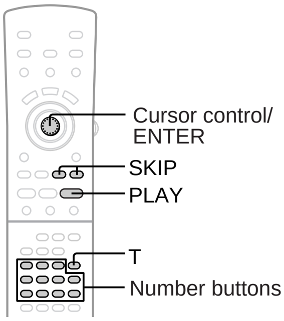
3 **Press ENTER.**

Playback starts from chapter 1 of the selected title.

Notes

- The instructions above describe basic procedures which may vary depending on the contents of the DVD video disc. If different instructions appear on the TV screen, follow those instructions.
- If you display the top menu during playback and press the TOP MENU button again without selecting any title, the DVD player may resume playback from the point where you first pressed the TOP MENU button (depending on the actual DVD video disc.)
  When using a DVD audio disc, the DVD player resumes playback from the beginning of the track where you pressed the TOP MENU button.
- This method of locating a title is available only on a disc that contains a top menu.
- Instruction notes of discs may refer to the button that displays the top menu as TITLE button.

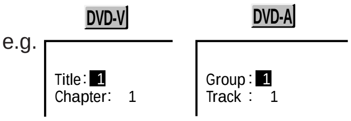
Locating a Desired Section (continued)



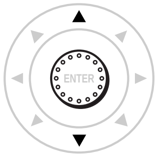
DVD-V DVD-A VCD CD Locating a desired section by entering the corresponding number

1 **Press T.**

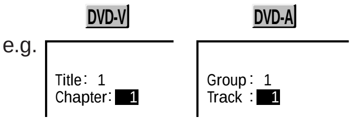
Skip steps 1 and 2 if you are using a VIDEO CD/ audio CD.
The following display appears.



2 **Move the cursor control to select a section you want to locate.**



e.g. When you want to locate a chapter or track.



3 **Press the corresponding number buttons for the section you want.**

e.g. To select chapter or track 25

2 → 5
or
+10 → +10 → 5

4 **Repeat steps 2 and 3 if necessary.**

5 **Press PLAY.**

PLAY ►

Playback starts from the selected section.

Notes

- Pressing the CLEAR button resets the numbers. To clear the display, press the T button several times.
- This method of locating a title/group is available only on a disc that contains title/group numbers.

■ Playing bonus groups of DVD audio discs

Some DVD audio discs may include an extra content called “Bonus group”.
If you select it to play, a display appears to enter a key number. Press the number buttons to enter the key number, then press ENTER.
When the number is entered correctly, playback of the bonus group starts.
To get key numbers, refer to instruction notes of discs.

Notes

- A key number may be cleared in some cases such as when removing the disc. Enter the key number again if necessary.
- When you use a bonus group in a programmed play such as memory playback, enter the key number beforehand.

DVD-V DVD-A VCD CD Locating a specific chapter or track

Press SKIP ⏮ or ⏭ repeatedly to display the chapter or track number you want.

Playback starts from the selected chapter or track.

SKIP ⏭ To locate succeeding chapters or tracks.

SKIP ⏮ Playback starts from the beginning of the current chapter or track.
When you press twice, playback starts from the beginning of the preceding chapter or track.

Notes

- Some titles may not display chapter numbers.
- When you set “Title/Group Stop” to “Off” 63, you can access chapters in another title. If you go back to the preceding title by pressing the SKIP ⏮ button, the DVD player locates the first chapter of the title. When “Title/Group Stop” is set to “On,” you can access chapters only within the current title.
- If you press and hold the SKIP ⏮ or ⏭ button on the front panel during playback, the DVD player performs fast reverse or fast forward playback. You can vary the speed by pressing the button further.
  To locate chapters or tracks during fast reverse or fast forward playback, first press the PLAY button to resume normal playback, then use the SKIP ⏮ or ⏭ button.

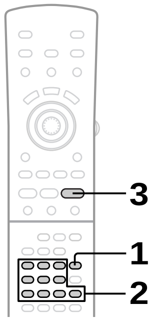
Advanced playback

Customizing the performance of your DVD player.

- **Accessing a Specific Location Directly**
- **Playing Repeatedly**
- **Playing in a Favorite Order**
- **Playing in Random Order**
- **Zooming a Picture**
- **Selecting DNR Picture Enhancement**
- **Selecting the Camera Angle**
- **Selecting Subtitles**
- **Selecting a Language**

Accessing a Specific Location Directly

You can access a specific location by entering its corresponding time (hours, minutes, seconds).



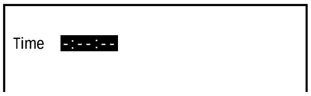
DVD-V DVD-A VCD CD

Entering the time of the desired location

1 Press T twice.

SEARCH
T

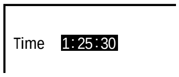
You may have to press further depending on the disc. Press the button repeatedly until the following display appears.



2 Press the number buttons to enter the time.

e.g.

1 → 2 → 5 → 3 → 0



3 Press PLAY.

PLAY
►

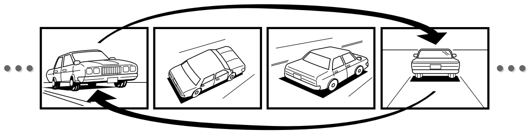
Playback starts from the desired location.

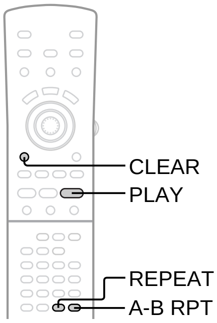
Notes

- Some discs may not respond to this process.
- Some scenes may not be located precisely as you specified.
- This method for accessing specific locations is available only within the current title of the DVD video disc or within the current track of the VIDEO CD/audio CD.

Playing Repeatedly

You can play a specific title, chapter, group, track, or segment repeatedly.





DVD-V DVD-A VCD CD Repeating a title, chapter, group or track

1 Press REPEAT.

REPEAT

Each time you press the REPEAT button, the repeat mode changes as follows.

Chapter Repeat

DVD-V	Chapter Repeat	Repeats the current chapter.
DVD-A	Track Repeat	Repeats the current track.
↓		
DVD-V	Title Repeat	Repeats the current title.
DVD-A	Group Repeat	Repeats the current group.
VCD	Track Repeat	Repeats the current track.
CD	Track Repeat	Repeats the current track.
↓		
DVD-V DVD-A VCD CD	All Repeat	Repeats the entire disc.
↓		
Repeat off		Resumes normal playback.

2 Press PLAY.

PLAY

The DVD player starts repeat playback.
Press the PLAY button within about 5 seconds after you press the REPEAT button.

■ To resume normal playback

Press **CLEAR**.

CLEAR

Note
Some discs may not permit repeat operation.

DVD-V DVD-A VCD CD Repeating a specific segment

1 Press A-B RPT at the beginning of the segment (point A) you want to play repeatedly.

A-B RPT

A–

2 Press A-B RPT again at the end of the segment (point B).

A-B RPT

The DVD player automatically returns to point A and starts repeat playback of the selected segment (A-B).

A–B

■ To resume normal playback

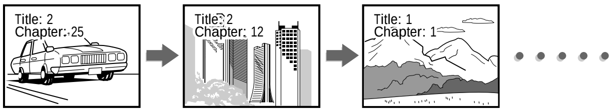
Press **CLEAR**.

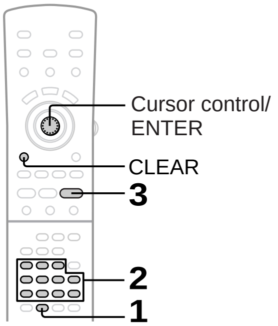
CLEAR

Notes
- Some discs may not permit A-B repeat operation.
- You cannot set the A-B repeat function for a segment that includes multiple camera angles 40.
- You can specify a segment only within the current title or track.
- There may be a slight difference between point A and the location where playback actually resumes depending on the disc.

Playing in a Favorite Order

You can combine your favorite titles, chapters, group, or tracks and play them in the order you determine. You can program up to 30 selections into the memory. (Memory playback)



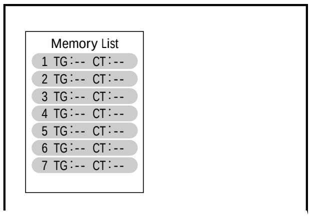


DVD-V DVD-A VCD CD Setting titles, chapters, group or tracks in a favorite order

1 Insert a disc and press MEMORY during stop.

MEMORY

The following display appears.


Memory List
1 TG:-- CT:--
2 TG:-- CT:--
3 TG:-- CT:--
4 TG:-- CT:--
5 TG:-- CT:--
6 TG:-- CT:--
7 TG:-- CT:--

TG: Title number
or group number
CT: Chapter number
or track number

2 Select the items in the order you want by pressing the number buttons, then ENTER for each item.

Each time you move the cursor control (◄ / ►), the spaces of “TG” and “CT” are highlighted in turn. Highlight where you want to enter, then press the corresponding number buttons.

To select tracks from a VIDEO CD/audio CD in order, press the **number buttons** for the track, then press the **ENTER** button for each selection you want.

Note
The space of “TG” may be showing a number. Neglect this number when using a VIDEO CD/audio CD.

To select another chapter in the same title, you do not need to select the title number.
To select another track in the same group, you do not need to select the group number.

3 Press PLAY while the “Memory List” display appears on the TV screen.

PLAY

The DVD player starts memory playback.

■ To change the programmed selections

1 While the “Memory List” display appears on the TV screen, move the cursor control (▲ / ▼) to highlight the item you want to change.
2 Change the selection following the instructions in step **2**.

■ To cancel the programmed selections

1 While the “Memory List” display appears on the TV screen, move the cursor control (▲ / ▼) to highlight the item you want to cancel.
2 Press **CLEAR**.

■ To resume normal playback from memory playback

Press **CLEAR**.

CLEAR

The memory playback indicator disappears.

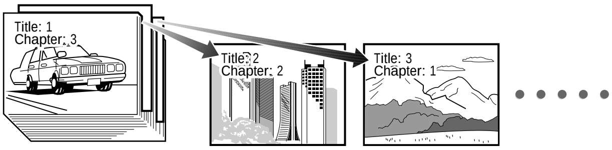
■ To program during playback

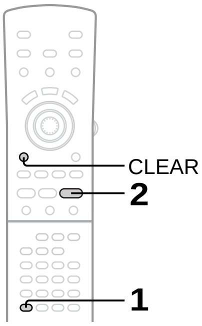
If you press the **MEMORY** button during playback, a programming display appears.
Follow steps **2** and **3**.

Notes
- Some discs may not permit memory playback operation.
- If you press the REPEAT button during memory playback, the DVD player repeats the current memory playback.
- If you press the MEMORY or RETURN button while the “Memory List” display appears on the TV screen, the “Memory List” display disappears.
- The programmed selections will be cleared when you turn off the DVD player.

Playing in Random Order

You can play titles, chapters within a title or tracks in random order.
(Random playback)





DVD-V DVD-A VCD CD Playing titles, chapters or tracks in random order

1 Press RANDOM.

RANDOM

Each time you press the RANDOM button, the random playback mode changes as follows.

Chapter Random

DVD-V	Chapter Random	Plays the chapters within the current title in random order.
↓		
DVD-V	Title Random	Plays the titles in random order.
VCD	Track Random	Plays the tracks in random order.
CD	Track Random	Plays the tracks in random order.
↓		
	Random Off	Resumes normal playback.

If you press the RANDOM button during playback, the DVD player automatically starts random playback after finishing the current title, chapter or track.

2 Press PLAY.

PLAY

The DVD player starts random playback.
Press the PLAY button within about 5 seconds after you press the RANDOM button.

■ To resume normal playback

Press **CLEAR**.

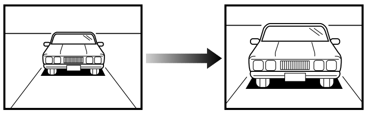
CLEAR

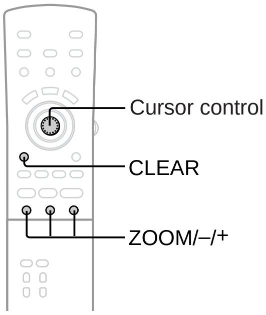
Notes

- Some discs may not permit random playback operation.
- You cannot use the random playback function in conjunction with the memory playback function.

Zooming a Picture

You can magnify areas within a picture.





DVD-V DVD-A VCD CD

Zooming a picture

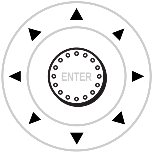
1 Press ZOOM during normal, slow or still playback.

ZOOM ○ Zoom playback starts.

2 Select the zoom point and magnification level.

⊕ To increase the magnification level.

⊖ To reduce the magnification level.



As you move the cursor control, the zoom point shifts.

CLEAR ⊖ Pressing the CLEAR button restores the zoom point to the center of the picture.

■ **To resume normal playback**

Press **ZOOM** repeatedly so that “Zoom Off” appears.

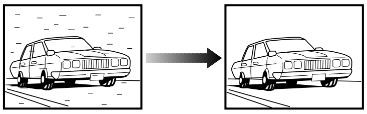
ZOOM ○

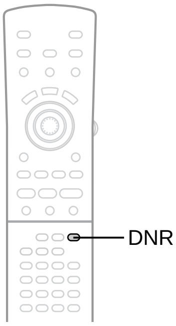
Notes

- Some discs may not respond to zoom feature.
- During some scenes, the buttons may not work as described.
- Zooming does not work on subtitles or menus included on DVD video discs.
- During zoom playback, the cursor control cannot work on menus included on DVD video discs. If you want to view the menus, cancel the zoom playback.
- The magnification level varies depending on the picture size you select. 56
- When using a DVD audio disc that includes pictures, this operation may be permitted in some picture segments.

Selecting DNR Picture Enhancement

You can view a picture with less video noise.





DVD-V DVD-A **VCD** CD

Selecting DNR picture enhancement

Press DNR during playback.

DNR

The current setting is displayed.

Each time you press the DNR button, the setting changes as follows.

3D DNR : On	Normal level
3D DNR : Expanded	Expanded level
3D DNR : Off	Off

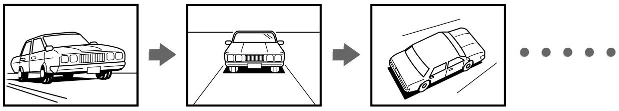
3D DNR: Three Dimension Digital Noise Reduction

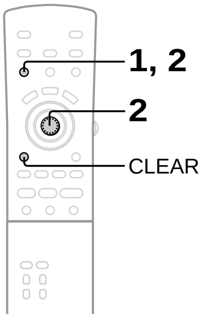
Notes

- Actual picture enhancement may vary depending on the quality of the disc.
- While the expanded level can provide additional improvement in the reduction of noise in the video signal, it may produce undesirable picture artifacts on some discs. Should this occur, select a more appropriate DNR level (normal or off).
- Depending on the disc, some kinds of picture details may be lost by the picture enhancement.
- When using a DVD audio disc that includes pictures, this operation may be permitted in some picture segments.

Selecting the Camera Angle

If the scene was recorded from multiple angles, you can easily change the camera angle of the scene you are watching.





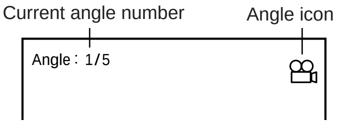
DVD-V DVD-A VCD CD Changing the camera angle

1 Press ANGLE while playing a scene recorded with multiple angles.

ANGLE

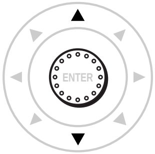
While playing a scene recorded with multiple angles, the angle icon (🎥) appears in the DVD display and on the TV screen.
Press the ANGLE button while the angle icon is displayed.

e.g.



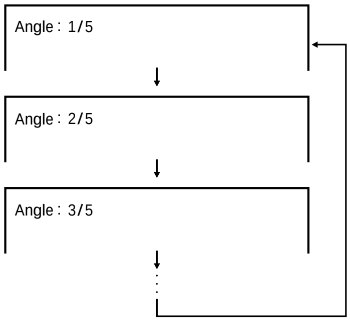
2 Press ANGLE or move the cursor control (▲) while the angle number is displayed on the TV screen.

ANGLE



Each time you press the ANGLE button or move the cursor control (▲), the camera angle changes.

e.g.



▼ : Cycles backwards

You can change the camera angle directly by pressing the number buttons corresponding to its angle number instead of moving the cursor control (▲ / ▼).

■ To turn off the angle number display

Press **CLEAR**.

CLEAR

■ To disable the angle icon display on the TV

From the on-screen displays, set “On-Screen Displays” to “Off.” 61

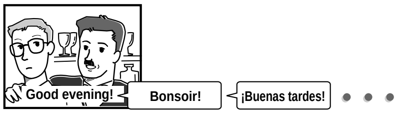
Monitor the DVD display when you want to change the camera angle.

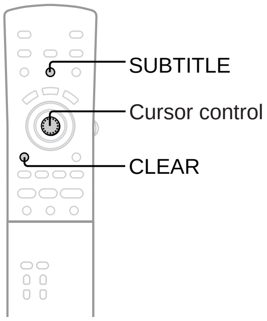
Notes

- You can change the camera angle during still playback. The camera angle changes to the new setting when you resume normal playback.
- If you pause a picture immediately after changing a camera angle, the resumed playback picture may not display the new camera angle.
- When using a DVD audio disc that includes pictures recorded from multiple angles, this operation may be permitted in some picture segments.

Selecting Subtitles

You can display subtitles on the TV screen and select a subtitle language from those included on the DVD video disc.

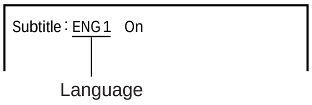

Good evening!
Bonsoir!
¡Buenas tardes!
• • •



DVD-V DVD-A VCD CD Selecting a subtitle language

1 **Press SUBTITLE during playback.**

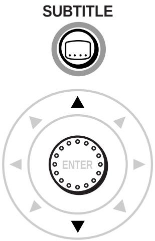
The current subtitle setting is displayed.



Subtitle : ENG 1 On

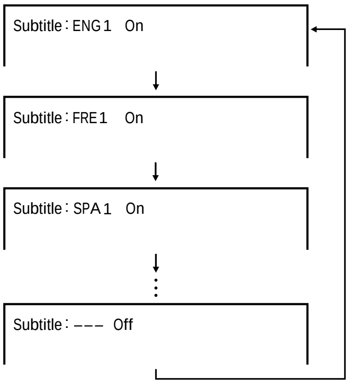
The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. 65

2 **Press SUBTITLE or move the cursor control (▲) while the subtitle setting is displayed on the TV screen.**



Each time you press the SUBTITLE button or move the cursor control (▲), the subtitle languages included on the DVD video disc change.

e.g.



Subtitle : ENG 1 On

Subtitle : FRE 1 On

Subtitle : SPA 1 On

Subtitle : – – – Off

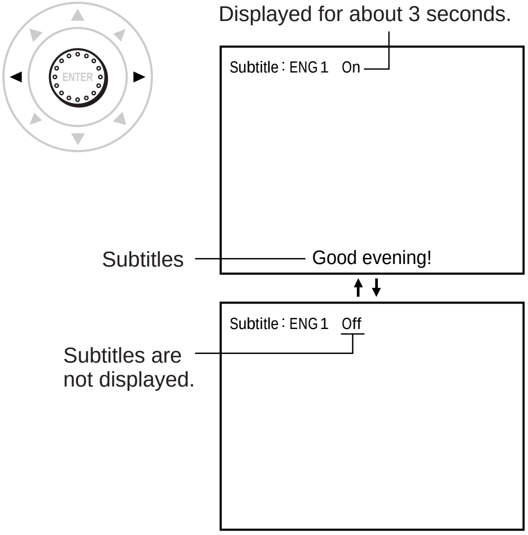
▼ : Cycles backwards

To turn off the subtitle setting display, press the CLEAR button.

■ To turn subtitles on or off

1 Press **SUBTITLE** during playback.

2 Move the cursor control (◀ / ▶) while the subtitle setting is displayed on the TV screen, to select “On” or “Off.”



Displayed for about 3 seconds.

Subtitle : ENG 1 On

Subtitle : ENG 1 Off

Notes

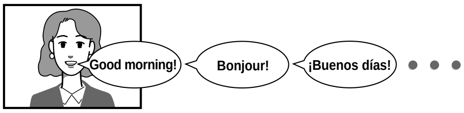
- Some DVD video discs are set to display subtitles automatically, and you cannot turn them off even if you set the subtitle function to off.
- During some scenes, the subtitles may not appear immediately after you select “On.”
- Some DVD video discs will allow you to make subtitle selections and turn subtitles on or off only via the disc menu.

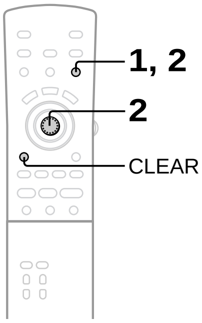
Notes

- When you turn on the DVD player or replace a disc, the player returns to the initial default setting 60.
  When you select a subtitle language which is not included on the disc, the DVD player plays a prior language programmed on the disc.
- During some scenes, the subtitles may not appear immediately after you change the subtitle language by moving the cursor control (▲ / ▼).
- When using a DVD audio disc that includes pictures accompanied with subtitles, this operation may be permitted in some picture segments.

Selecting a Language

You can select a preferred language and sound recording system from those included on the DVD video disc.


Good morning!
Bonjour!
¡Buenos días!

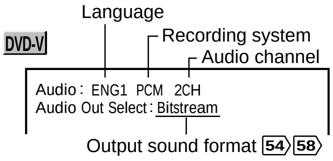


DVD-V DVD-A VCD CD Selecting a playback audio setting

1 **Press AUDIO during playback.**

The current audio setting is displayed.

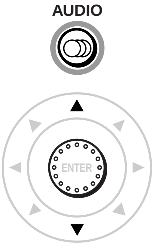
e.g. DVD-V



Audio : ENG1 PCM 2CH
Audio Out Select : Bitstream

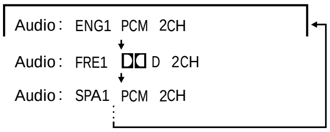
The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. 65

2 **Press AUDIO or move the cursor control (▲) while the audio setting is displayed on the TV screen.**



Each time you press the AUDIO button or move the cursor control (▲), the audio settings included on the DVD video disc change.

e.g. DVD-V



Audio : ENG1 PCM 2CH
Audio : FRE1 DD D 2CH
Audio : SPA1 PCM 2CH

- ▼ : Cycles backwards
- If you move the cursor control (◀ / ▶), you can select output sound format. 58
  When using a DVD audio disc, this operation may not be available.

To turn off the audio setting display, press the CLEAR button.

■ Selecting sound channels of VIDEO CDs

You can switch left and right channels by pressing the **AUDIO** button repeatedly during playback.

Notes

- When you turn on the DVD player or replace a disc, player returns to the initial default setting 60.
  If you select a sound track which is not included on the disc, the DVD player plays a prior sound track programmed on the disc.
- Some discs allow you to change audio selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate language from the selections on the disc menu.
- Some DVD audio discs may show the sampling frequency and bit of the sound recording system used on the disc.
- When you change the audio setting during playback of a DVD audio disc, playback may return to the beginning of the current track.

Output sound conversion table (sampling frequency/quantization bit)

Discs	Sound recording system		Audio selection from the menu 54 58 and output jacks on the rear panel							
			“Bitstream”		“Analog 6ch”		“Analog 2ch”		“PCM”	
			BITSTREAM/PCM jack	2CH AUDIO OUT jacks	BITSTREAM/PCM jack	5.1CH SURROUND AUDIO OUT jacks	BITSTREAM/PCM jack	2CH AUDIO OUT jacks	BITSTREAM/PCM jack	2CH AUDIO OUT jacks
DVD video discs	Dolby Digital		Bitstream	48 kHz/20 bit	–	48 kHz/20 bit	Bitstream	48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit
	Linear PCM	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit
		48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit
		48 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/16 bit	48 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit
		96 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	–	96 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit
		96 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	–	96 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit
		96 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit	48 kHz/16 bit	48 kHz/20 bit	–	96 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit
	DTS		Bitstream	–	Bitstream	–	Bitstream	–	–	–
	MPEG2		Bitstream	48 kHz/16 bit	–	48 kHz/16 bit	Bitstream	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit
VIDEO CDs	MPEG1		44.1 kHz/16 bit	44.1 kHz/16 bit	–	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit
Audio CDs	Linear PCM 44.1 kHz/16 bit		44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit
	HDCD		44.1 kHz/16 bit	44.1 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/20 bit
	DTS		Bitstream	(Noise)	Bitstream	(Noise)	Bitstream	(Noise)	Bitstream	(Noise)
DVD audio discs	Linear PCM or Packed PCM	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	–	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit
		48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	–	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit
		44.1 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/20 bit	–	44.1 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/20 bit
		48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	–	48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit
		44.1 kHz/24 bit	44.1 kHz/16 bit	44.1 kHz/24 bit	–	44.1 kHz/24 bit	44.1 kHz/16 bit	44.1 kHz/24 bit	44.1 kHz/16 bit	44.1 kHz/24 bit
		48 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit	–	48 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit	48 kHz/16 bit	48 kHz/24 bit
		88.2 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit	–	88.2 kHz/16 bit	–	88.2 kHz/16 bit	44.1 kHz/16 bit	44.1 kHz/16 bit
		96 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	–	96 kHz/16 bit	–	96 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit
		88.2 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/20 bit	–	88.2 kHz/20 bit	–	88.2 kHz/20 bit	44.1 kHz/16 bit	44.1 kHz/20 bit
		96 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit	–	96 kHz/20 bit	–	96 kHz/20 bit	48 kHz/16 bit	48 kHz/20 bit
		88.2 kHz/24 bit	44.1 kHz/16 bit	44.1 kHz/20 bit	–	88.2 kHz/24 bit	–	88.2 kHz/24 bit	44.1 kHz/16 bit	44.1 kHz/20 bit
		96 kHz/24 bit	48 kHz/16 bit	48 kHz/20 bit	–	96 kHz/24 bit	–	96 kHz/24 bit	48 kHz/16 bit	48 kHz/20 bit
		* 176.4 kHz/16 bit	–	176.4 kHz/16 bit	–	176.4 kHz/16 bit	–	176.4 kHz/16 bit	–	176.4 kHz/16 bit
		* 192 kHz/16 bit	–	192 kHz/16 bit	–	192 kHz/16 bit	–	192 kHz/16 bit	–	192 kHz/16 bit
		* 176.4 kHz/20 bit	–	176.4 kHz/20 bit	–	176.4 kHz/20 bit	–	176.4 kHz/20 bit	–	176.4 kHz/20 bit
		* 192 kHz/20 bit	–	192 kHz/20 bit	–	192 kHz/20 bit	–	192 kHz/20 bit	–	192 kHz/20 bit
		* 176.4 kHz/24 bit	–	176.4 kHz/24 bit	–	176.4 kHz/24 bit	–	176.4 kHz/24 bit	–	176.4 kHz/24 bit
		* 192 kHz/24 bit	–	192 kHz/24 bit	–	192 kHz/24 bit	–	192 kHz/24 bit	–	192 kHz/24 bit

* : 2 channel sound

- HDCD sound via the 2CH AUDIO OUT jacks and the 5.1CH SURROUND AUDIO OUT jacks is output in a normal audio CD format when “Analog 6ch” is selected.
- Some of multi-channel recorded DVD audio discs may not be permitted 2-channel mix playback. If you play such a disc on this player connecting two speakers, you may obtain only the original left and right channel sound, and may not hear other channels. This is because of the playback restriction of the disc. Refer to instructions of the disc for details. Such discs may include the same contents recorded in stereo. Play it if available, by changing the audio setting.

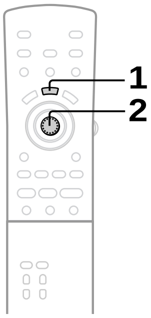
Quick control

Simple use of a single button and the cursor control enables you to direct your playback, without manipulating many actual buttons.

- **Using the Graphic Remote Control - V-REMOTE -**
- **Selecting the Playback Function - QUICK -**
- **Accessing Features - NAVI -**

Using the Graphic Remote Control
- V-REMOTE -

Pressing one button can display a graphics based on-screen remote control that allows you to control playback as if you were doing it from the actual remote control.

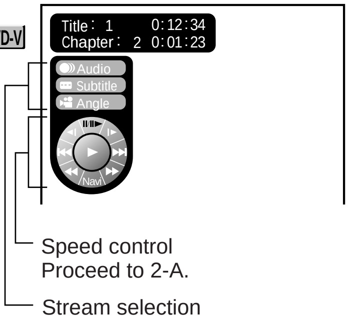


DVD-V DVD-A VCD CD Using the graphic remote control

1 **During playback, press V-REMOTE.**

The graphic remote control (Virtual Remote) appears.

e.g. DVD-V



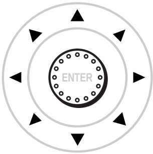
Speed control
Proceed to 2-A.

Stream selection
Proceed to 2-B.

2 Proceed to **A** or **B**.

A: Move the cursor control to select the speed control, and press ENTER.

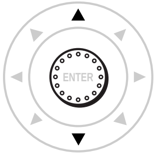
DVD-V VCD CD



II/II▶ : Pause 27 / Frame by frame 29
▶ : Normal playback 26
I▶ : Slow 30
▶▶I : Forward skip 32
▶▶ : Fast forward 29
◀I : Reverse slow 30
I◀◀ : Reverse skip 32
◀◀ : Fast reverse 29
Navi : Accesses the Navi menu 48

B: Move the cursor control (▲ / ▼) to select "Audio," "Subtitle," or "Angle," and press ENTER.

DVD-V



Audio:	Move the cursor control (▲ / ▼) to select a desired audio language, and press **ENTER**. For details, see page 42. Selecting the output sound format is not possible here.
Subtitle:	Move the cursor control (▲ / ▼) to select a desired subtitle language, and press **ENTER**. For details, see page 41.
Angle:	Move the cursor control (▲ / ▼) to select a desired camera angle, and press **ENTER**. For details, see page 40.

■ To turn off the Virtual Remote

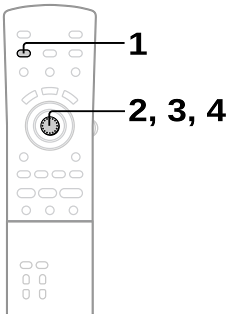
Press **V-REMOTE**.

Note

Some discs may not permit this operation.

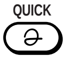
Selecting the Playback Function - QUICK -

Pressing one button can display a list of playback functions which are relevant to your current playback mode. You can check and modify them from the list.



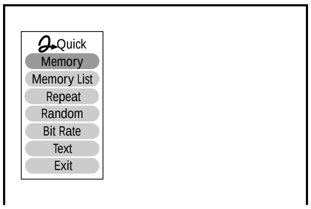
DVD-V DVD-A VCD CD Selecting the playback function

1 **During playback, press QUICK.**

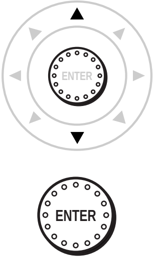


The following on-screen display appears.
(The actual display will vary depending on the playback status.)

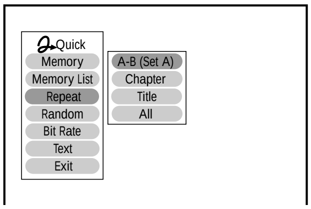
e.g. DVD-V


Quick
Memory
Memory List
Repeat
Random
Bit Rate
Text
Exit

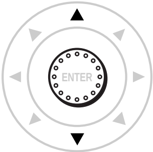
2 **Move the cursor control (▲ / ▼) to select a desired item, and press ENTER.**


ENTER
ENTER

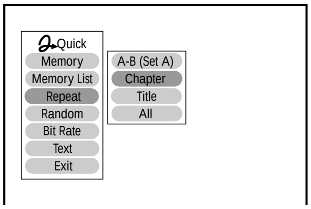
e.g. To change the repeat mode:


Quick
Memory
Memory List
Repeat
Random
Bit Rate
Text
Exit
A-B (Set A)
Chapter
Title
All

3 **Move the cursor control (▲ / ▼) to change the setting.**



e.g. To select the chapter repeat mode:


Quick
Memory
Memory List
Repeat
Random
Bit Rate
Text
Exit
A-B (Set A)
Chapter
Title
All

4 **Press ENTER.**

The on-screen display disappears and playback will resume according to your selection.

■ Quick menu

For details, see the respective pages.

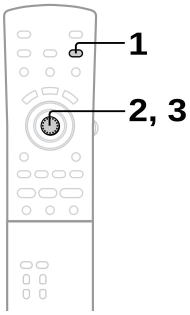
Memory :	To program memory playback. 36
Memory List :	To list memory settings. 36
Repeat :	To select the repeat playback mode. 35
Random :	To select the random playback mode. 37
Bitrate :	To activate/disable the bitrate display. 48
Text :	To activate/disable the Text display. Text display: Displays DVD-Text data or CD-Text data if included on the disc. When playing a DVD audio disc, displays Album Text data if included on the disc. However, Track Text data is not displayed. (Some content on the disc may not be displayed properly depending on the disc.)
Exit :	To quit the on-screen display.

Note

Pressing the QUICK button again also exits the on-screen display.

Accessing Features - NAVI -

The NAVI menu provides an icon based display from which you can easily access key playback function.

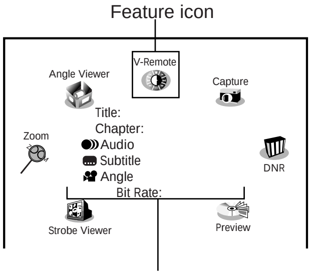


DVD-V DVD-A VCD CD NAVI menu items

1 Press NAVI.

The NAVI menu appears.

e.g. DVD-V



Each time you press the NAVI button, the display changes.

Title/Chapter:	Elapsed time and remainig time of the current title/chapter.
Audio:	Current audio setting
Subtitle:	Current subtitle setting
Angle:	Current angle setting
Bit Rate:	Data transfer rate (Mbit/s) Amount of picture, sound and subtitle data in the DVD video disc transferred per second. The larger the value, the more data processed, but this does not necessarily insure better picture quality.

Status display (playback mode, current DNR setting, current zoom status, etc.)

Note

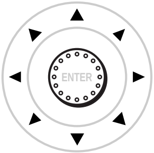
When playing a DVD audio disc, the area may show the sound recording system (sampling frequency and quantization bit) of the disc, and the corresponding speakers using the following symbols.

C (mono):
Recorded in monaural.

L, R:
(L: Left, R: Right)
Recorded in 2ch stereo.

Lf, Rf, C, LFE, S, Ls, Rs:
(Lf: Left front, Rf: Right front, C: Center,
LFE: Subwoofer, S: Surround,
Ls: Left surround, Rs: Right surround)
Recorded in multi-channel.

2 Move the cursor control to select a desired feature icon.



For details on each feature, refer to the list on the next page.

3 Press ENTER.

Selection details appears.

4 Refer to the list on the next page and follow the instructions detailed on subsequent pages.

Notes

- The NAVI menu will disappear by pressing the NAVI button several times.
- The number of feature icons on the display will vary depending on the disc.
- Feature icons are displayed only when you play a DVD video disc.

Navi menu selections DVD-V

V-Remote	You can control key playback functions using the graphics based on-screen remote control.	46
Angle Viewer	You can display all camera angles simultaneously and select your preferred one from them.	50
Zoom	You can magnify areas within a picture.	38
Strobe Viewer	You can divide a desired scene into stop action frames for careful analysis.	50
Preview	You can display thumbnail views of the first scenes of titles or chapters and select a preferred one.	51
DNR	You can view a picture with less video noise.	51
Capture	You can sample a scene from a playback picture and transform it into a background picture.	52

Accessing Features - NAVI - (continued)

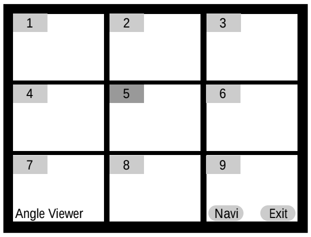
NAVI menu items

Angle Viewer

You can display all camera angles simultaneously and select your preferred one from them.

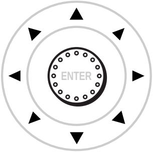
After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



When the scene contains 9 camera angles:

1 Move the cursor control to select.



1-9 : To select the camera angle.
Navi: To return to the NAVI menu.
Exit : To quit the on-screen display.

2 Press **ENTER**.

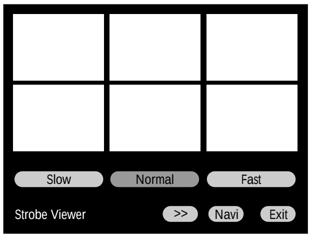
Note
Some discs or scenes may not permit this operation.

Strobe Viewer

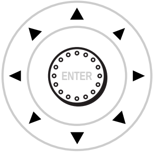
You can divide a desired scene into stop action frames for careful analysis.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



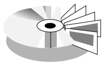
1 Move the cursor control to select.



Slow: Still pictures at shorter intervals.
Normal: Still pictures at normal intervals.
Fast: Still pictures at longer intervals.
>>: To view the next series of 6 pictures.
Navi: To return to the NAVI menu.
Exit : To quit the on-screen display.

2 Press **ENTER**.

Note
Some discs or scenes may not permit this operation.

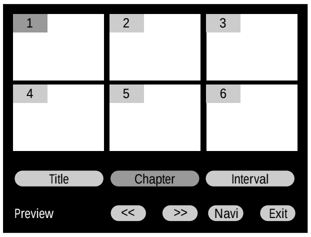


Preview

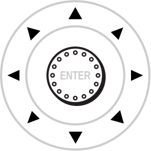
You can display thumbnail views of the first scenes of titles or chapters and select a preferred one.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



1 Move the cursor control to select.

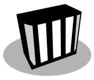


1 - 6:	To locate the scene.
Title:	To display the first scenes of titles (1 to 6).
Chapter:	To display the first scenes of chapters (1 to 6).
Interval:	To display scenes at intervals of about 10 minutes apart.
<< :	To go to the previous page.
>> :	To go to the next page.
Navi:	To return to the NAVI menu.
Exit :	To quit the on-screen display.

2 Press **ENTER**.

Notes

- Some discs or scenes may not permit this operation.
- Some items may not be selected depending on the disc or scene.
- Some of the first scenes may not picked up depending on the disc.

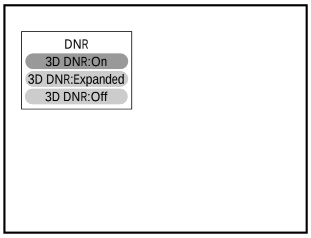


DNR

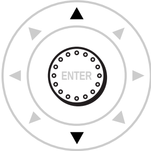
You can view a picture with less video noise.

After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



1 Move the cursor control to select.



3D DNR:On	Normal level.
3D DNR:Expanded	Expanded level.
3D DNR:Off	Off.

2 Press **ENTER**.

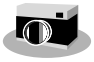
Note

For details and notes on the DNR picture enhancement, see page 39.

Accessing Features - NAVI - (continued)

NAVI menu items

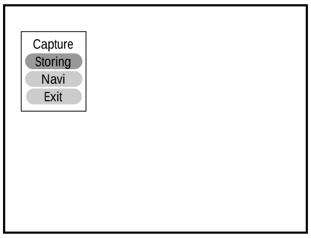
Capture



You can sample a scene from a playback picture and transform it into a background picture.

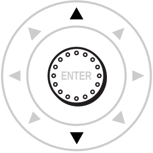
After selecting this icon and pressing ENTER, the following on-screen display appears:

e.g.



1 Pause playback at a scene you want to capture.

2 Move the cursor control to select.



Storing: To sample and store the current picture in the player memory.
Navi: To return to the NAVI menu.
Exit : To quit the on-screen display.

3 Press **ENTER**.

The stored picture will be displayed as a background picture when the player is in the stop mode. It is necessary to confirm this process via the setup menu 61.

Notes

- You can store only one picture. Storing a new picture will erase the old one.
- No operations are permitted in process of sampling and storage of background picture.

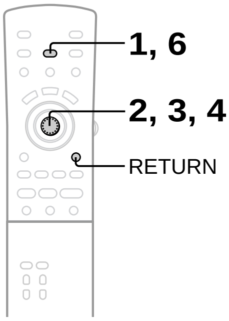
Function Setup

You can change the default settings to customize performance to your preference.

- **Customizing the Function Settings**
- **Table of Languages**
- **Operating a TV with the remote control**

Customizing the Function Settings

You can change the default settings to customize performance to your preference.

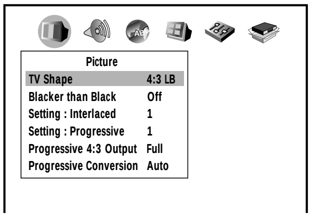


DVD-V DVD-A VCD CD Setting procedure

1 Press SETUP during stop.

SETUP

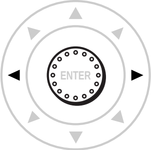
The following on-screen display appears.



Picture	
TV Shape	4:3 LB
Blacker than Black	Off
Setting : Interlaced	1
Setting : Progressive	1
Progressive 4:3 Output	Full
Progressive Conversion	Auto

2 Move the cursor control (◀ / ▶) to select a symbol for the setting you want to change.

(See the next page.)



Picture performance settings

Output sound settings

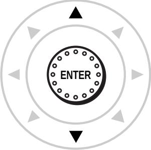
Language settings

Display settings

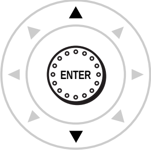
Operational settings

Initial settings

3 Move the cursor control (▲ / ▼) to select the setting you want to change, then press ENTER.



4 Change the selection by the cursor control (▲ / ▼) or other buttons, by referring to the corresponding pages 56, then press ENTER.



5 Repeat steps 3 and 4 to change other settings.

To select another operation, go back to step 2.

6 Press SETUP.

SETUP

The on-screen display disappears.

■ **To return to the previous display**

Press **RETURN**.

RETURN

Notes

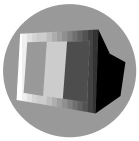
- The on-screen display disappears when you press the SETUP button.
- The SETUP button can function even during normal playback, however some operations may be inaccessible, and a message will appear. In this case, try again after playback is stopped.

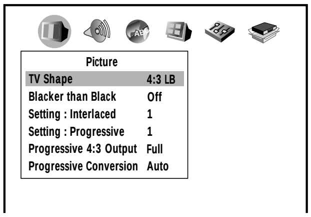
Setting		Details	Page
TV Shape	DVD-V	**To select a picture size according to the aspect ratio of your TV.**	**56**
Blacker than Black	DVD-V VCD	**To make an adjustment of the black level on your TV using a commercially available test disc that contains adjustment signals.**	**56**
Setting: Interlaced	DVD-V VCD	**To adjust the picture quality.**	**56**
Setting: Progressive	DVD-V VCD	**To adjust the picture quality. (Only when connected to a PROGRESSIVE TV.)**	**57**
Progressive 4:3 Output	DVD-V VCD	**To select the video output of pictures recorded in 4:3 format. (Only when connected to a PROGRESSIVE TV.)**	**57**
Progressive Conversion	DVD-V VCD	**To select the system of output signal. (Only when connected to a PROGRESSIVE TV.)**	**57**
Audio Out Select	DVD-V DVD-A VCD CD	**To select an output sound format corresponding to your system connection.**	**58**
Dynamic Range Control	DVD-V	**To turn on or off a function that makes faint sounds easier to hear even if you lower the volume during late hours playback.**	**59**
Karaoke Vocal	DVD-V	**To turn on or off the vocal output during DVD KARAOKE disc playback.**	**59**
CD Attenuation	CD	**To attenuate sound distortion incurred during playback of an audio CD (HDCD).**	**59**
On-Screen Language	DVD-V DVD-A VCD CD	**To select a preferred language for on-screen displays.**	**60**
Disc Menu Language	DVD-V	**To select a preferred language for disc menus.**	**60**
Audio Language	DVD-V	**To select a preferred language for the sound track.**	**60**
Subtitle Language	DVD-V	**To select a preferred language for subtitles.**	**60**
On-Screen Displays	DVD-V DVD-A VCD CD	**To turn on or de-activate the operational status display on the TV screen.**	**61**
Background	DVD-V DVD-A VCD CD	**To select the background color or background picture.**	**61**
Screen Saver	DVD-V	**To turn the screen saver on or off.**	**61**
Pause/Still	DVD-V	**To select the resolution of still pictures. (Field/Frame)**	**62**
Parental Lock	DVD-V	**To turn the parental lock function on or off.**	**62**
Remote Confirmation	DVD-V DVD-A VCD CD	**To turn on or off the confirmation beeper announcing when each remote command received.**	**63**
Title/Group Stop	DVD-V DVD-A	**To turn on or off a feature that automatically stops playback after a title/group has been viewed.**	**63**
PBC	VCD	**To use the menu screen when playing a PBC-controllable VIDEO CD.**	**63**
Priority Contents	DVD-V DVD-A	**To select the playback priority between DVD video and DVD audio format signals.**	**63**
On-screen Language **TV Shape** **Audio Out Select**	DVD-V DVD-A VCD CD	**To install the initial system setting.**	**64**

- **When using a DVD audio disc that includes pictures, some settings marked DVD-V may be effective.**

Customizing the Function Settings (continued)

Setting details

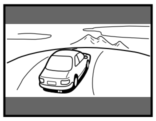




Picture
TV Shape 4:3 LB
Blacker than Black Off
Setting : Interlaced 1
Setting : Progressive 1
Progressive 4:3 Output Full
Progressive Conversion Auto

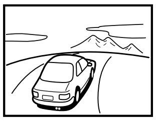
TV Shape DVD-V

4:3 Letterbox:



Select when a standard 4:3 TV is connected.
Displays theatrical images with masking bars above and below the picture.

4:3 Normal:



Select when a standard 4:3 TV is connected.
Displays pictures cropped to fill your TV screen. Either or both sides of the picture are cut off.

16:9 Widescreen: Select when a 16:9 wide TV is connected.

Notes

- The displayable picture size is preset on the DVD video disc. Therefore, the playback picture of some DVD video discs may not conform to the picture size you select.
- When you play DVD video discs recorded in the 4:3 picture size only, the playback picture always appears in the 4:3 picture size regardless of the TV shape setting.
- If you select “16:9 Widescreen” and you own a 4:3 TV set, the DVD playback picture will be horizontally distorted during playback. Images will appear to be horizontally compressed. Always be sure that your TV shape conforms to the actual TV in use.

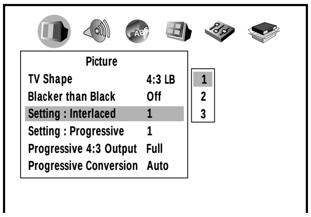
Blacker than Black DVD-V VCD

Off: For normal use.
On: Select when you adjust the black level of your TV using a commercially available test disc that contains adjustment signals.

Setting : Interlaced DVD-V VCD

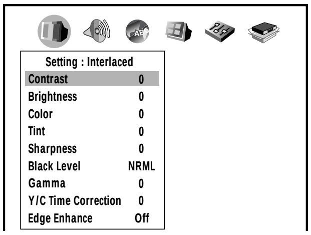
You can fine adjust picture quality and store up to 3 custom picture settings in the memory of the DVD player.
To select a preset memory setting:

1) Move the cursor control (▲ / ▼) to select a memory number (1 to 3), and press the ENTER button.



Picture
TV Shape 4:3 LB
Blacker than Black Off
Setting : Interlaced 1
Setting : Progressive 1
Progressive 4:3 Output Full
Progressive Conversion Auto
1
2
3

2) Move the cursor control (▲ / ▼) to select the element, and press the ENTER button.



Setting : Interlaced
Contrast 0
Brightness 0
Color 0
Tint 0
Sharpness 0
Black Level NRML
Gamma 0
Y/C Time Correction 0
Edge Enhance Off

3) Move the cursor control (◄ / ►) to adjust the value, and press the ENTER button.

(-7) Lower	Contrast	Higher (+7)
(-7) Darker	Brightness	Brighter (+7)
(-7) Duller	Color	Brighter (+7)
(-7) Redder	Tint	Greener (+7)
(-7) Softer	Sharpness	Sharper (+7)
Enhanced	Black Level	Normal
(–)	Gamma*1	(+)
(-3)	Y/C Time Correction*2	(+3)
Off	Edge Enhance*3	On

*1: Adjust when playback pictures are too dark or too whitish.
*2: Adjust horizontal color deviations. Pictures may shift horizontally during the adjustment.
*3: To enhance picture edges.

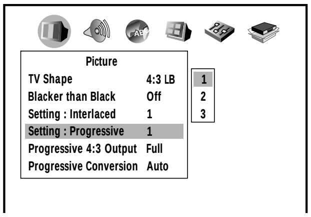
Notes

- These adjustments are not available when connecting to a PROGRESSIVE TV.
- The Tint adjustment is not available when connecting to a TV via the component video jacks (Y, PB, PR).

Setting : Progressive DVD-V VCD

You can fine adjust picture quality and store up to 3 picture settings in the memory of the DVD player. (Only when connected to a PROGRESSIVE TV.)
To select a preset memory setting:

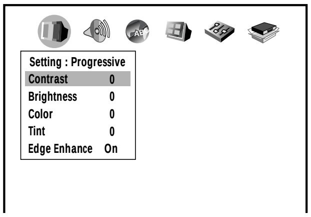
1) Move the cursor control (▲ / ▼) to select a memory number (1 to 3), and press the ENTER button.



Picture

TV Shape	4:3 LB	1
Blacker than Black	Off	2
Setting : Interlaced	1	3
Setting : Progressive	1	
Progressive 4:3 Output	Full	
Progressive Conversion	Auto	

2) Move the cursor control (▲ / ▼) to select the element, and press the ENTER button.



Setting : Progressive

Contrast	0
Brightness	0
Color	0
Tint	0
Edge Enhance	On

3) Move the cursor control (◀ / ▶) to adjust the value, and press the ENTER button.

(-7) Lower	Contrast	Higher (+7)
(0) Darker	Brightness	Brighter (+14)
(-7) Duller	Color	Brighter (+7)
(-7) Redder	Tint	Greener (+7)

Edge Enhance
To enhance picture edges.
(Off < On < Expanded1 < Expanded2)

Progressive 4:3 Output DVD-V VCD

Select the video output of pictures recorded in 4:3 format. (Only when connected to a PROGRESSIVE TV.)

4:3: Displays images in 4:3 aspect ratio with masking bars to the left and right of the picture.

Full: Displays pictures expanded horizontally to fill the 16:9 screen.

Progressive Conversion DVD-V VCD

There are two types of source content in pictures recorded in DVD video discs: film content (pictures recorded from films at 24 frames per second) and video content (video signals recorded at 30 frames per second). Make this selection according to the type of content being viewed.

Auto: Select this position normally.
The DVD player automatically detects source content, film or video, of playback source, and converts that signal in the progressive output format in an appropriate method.

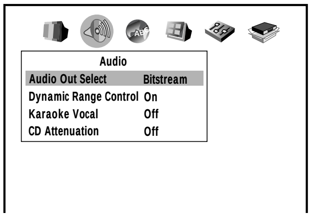
Video: The DVD player filters video signal, and converts it in the progressive output format appropriately.
Suitable for playback of video content pictures.

Film: The DVD player converts film content pictures in the progressive output format appropriately.
Suitable for playback of film content pictures.
The progressive output feature will be most effective under this selection.

Note
Depending on the disc, pictures may be cut off or doubled. In this case, select "Video."

Customizing the Function Settings (continued)

Setting details



Audio

Audio Out Select Bitstream

Dynamic Range Control On

Karaoke Vocal Off

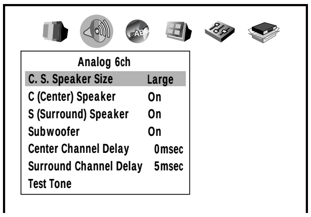
CD Attenuation Off

Audio Out Select DVD-V DVD-A VCD CD

Select the output sound format corresponding to your system connection.
For details of sound recording systems, see 43.

Bitstream:	Select when connected to an amplifier equipped with a Dolby Digital, DTS, MPEG1 or MPEG2 decoder. 21 22 The DVD player outputs digital audio information in the bitstream format when you play a DVD video disc recorded on the Dolby Digital, DTS, MPEG1 or MPEG2 recording system.
Analog 6ch:	Select when connected to an AV amplifier equipped with 5.1ch audio inputs. 23 The next screen will detail the appropriate settings.
Analog 2ch:	Select when connected to a TV, or Dolby Pro Logic or stereo system via the analog audio jacks. 18 19 21
PCM:	Select when connected to a 2 channel digital stereo amplifier. 23 The DVD player outputs sounds in the PCM 2ch format when you play a DVD video disc recorded on the Dolby Digital, MPEG1 or MPEG2 recording system.

When you select “Analog 6Ch”:
Make the following settings for the built-in 5.1ch surround decoder.



Analog 6ch

C. S. Speaker Size Large

C (Center) Speaker On

S (Surround) Speaker On

Subwoofer On

Center Channel Delay 0msec

Surround Channel Delay 5msec

Test Tone

1) Select an item by moving the cursor control (▲ / ▼), and press the ENTER button.

2) Make the settings (see below) by moving the cursor control (▲ / ▼ / ◄ / ►), and press the ENTER button.

C.S.Speaker Size

Small:	When the center speaker or surround speakers cannot reproduce low frequency signals below 120 Hz.
Large:	When the center speaker and surround speakers can reproduce low frequency signals below 120 Hz.

C(Center) Speaker

Off: When center speaker is not connected.
On: When you connect center speaker.

S(Surround) Speaker

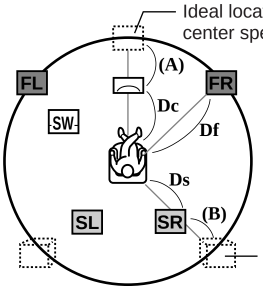
Off: When surround speakers are not connected.
On: When you connect surround speakers.

Subwoofer

Off: When a sub woofer is not connected.
On: When you connect a sub woofer.

Note
Depending on the sound in a DVD audio disc, speakers may output each sound of recorded channels, regardless of your settings.

Adjusting the delay time:
When enjoying 5.1ch surround playback, it is ideal to choose a listening position that is the same distance from each speaker. By adjusting the delay time of the center/surround speakers, you can virtually create an ideal listening environment (as if the center/surround speakers were at their ideal locations respectively as below.)



Ideal location of a center speaker

All speakers should be located within a circle with a radius of **Df**.

Ideal location of a surround speaker

Center Channel Delay

0msec: When **Df** equals **Dc**.
1msec: When **(A)** is approx. 34 cm (13 inch)
2msec: When **(A)** is approx. 68 cm (27 inch)
3msec: When **(A)** is approx. 102 cm (40 inch) . . .
*(A) = Df – Dc
Get your optimum value (0, 1, 2 . . . 5) dividing **(A)** by 34.

Surround Channel Delay

0msec: When **Df** equals **Ds**.
1msec: When **(B)** is approx. 34 cm (13 inch)
2msec: When **(B)** is approx. 68 cm (27 inch)
3msec: When **(B)** is approx. 102 cm (40 inch) . . .
*(B) = Df – Ds
Get your optimum value (0, 1, 2 . . . 15) dividing **(B)** by 34.

Note
Depending on the sound in a DVD audio disc, the DVD player may adjust delay time as “0msec,” regardless of your delay time settings.

3) Select “Test Tone” and press the ENTER button.
The DVD player outputs a test signal to each speaker when it is in stop mode. When playing a DVD video disc, it substitutes the current sound for the test signal.
Move the cursor control (◄ / ►) to select the receiving speakers, and adjust the volume of each speaker at the same level by moving the cursor control (▲ / ▼).
If all the volume levels cannot be equalized, adjust them on the amplifier.

Note
Depending on the disc, 6 channel sounds may not be output via the 5.1 CH SURROUND AUDIO OUT jacks.

Dynamic Range Control DVD-V

Off: Full dynamic range is maintained.
On: Dynamic range is reduced.

Notes
- This function works only during playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on the DVD disc.

Karaoke Vocal DVD-V

Off: The primary vocal is not output.
On: The primary vocal is output when it is recorded on the disc.

Notes
- The vocal output feature is used during playback of Dolby Digital (multi-channel) recorded DVD KARAOKE discs. This feature allows you to turn off vocal audio tracks, or restore them for background accompaniment.
- When playing KARAOKE, connect appropriate audio equipment such as an amplifier to the DVD player.

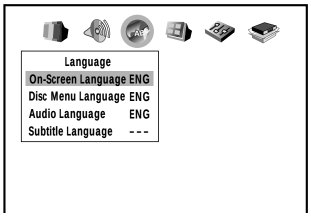
CD Attenuation CD

HDCD enhances the output sound level of audio CD by approximately 6 dB. As such, distortion may occur in some connected products that are unable to compensate for a wide range of input signal levels. (e.g. TV, stereo receivers)

Off: For normal use.
On: Select when an HDCD sound is distorted. Sound volume of an HDCD is lessened.

Customizing the Function Settings (continued)

Setting details


Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -

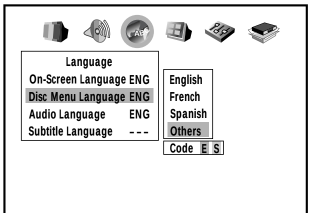
On-Screen Language DVD-V DVD-A VCD CD

English: To view on-screen displays in English.
Français: To view on-screen displays in French.
Español: To view on-screen displays in Spanish.

Disc Menu Language DVD-V

English: To display disc menus in English.
French: To display disc menus in French.
Spanish: To display disc menus in Spanish.
Others: To make a further choice.
After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 65.
2) Select the first character by moving the cursor control (▲ / ▼).
3) Move the cursor control (◀ / ▶) to shift and select the second character by moving the cursor control (▲ / ▼).


Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -
English
French
Spanish
Others
Code E S

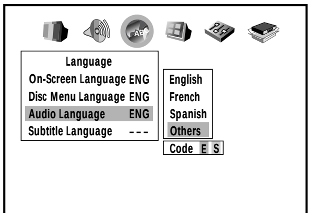
4) Press the ENTER button.

Note
Some DVD video discs may not include your pre-selected language. In this case, the DVD player automatically displays disc menus consistent with the disc's initial language setting.

Audio Language DVD-V

English: To play sound tracks in English.
French: To play sound tracks in French.
Spanish: To play sound tracks in Spanish.
Others: To make a further choice.
After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 65.
2) Select the first character by moving the cursor control (▲ / ▼).
3) Move the cursor control (◀ / ▶) to shift and select the second character by moving the cursor control (▲ / ▼).


Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -
English
French
Spanish
Others
Code E S

4) Press the ENTER button.

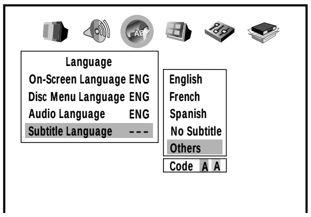
Note
Some DVD video discs may be played in a different language than you selected. A prior language may be programmed on the disc.

Subtitle Language DVD-V

English: To display subtitles in English.
French: To display subtitles in French.
Spanish: To display subtitles in Spanish.
No Subtitle: To disable subtitles.
Others: To make a further choice.
After pressing the ENTER button, follow steps 1) - 4) below.

1) Obtain the abbreviation of the preferred language from the list 65.
2) Select the first character by moving the cursor control (▲ / ▼).

3) Move the cursor control (◀ / ▶) to shift and select the second character by moving the cursor control (▲ / ▼).



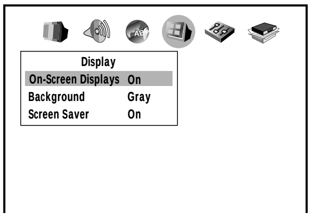
Language
On-Screen Language ENG
Disc Menu Language ENG
Audio Language ENG
Subtitle Language - - -

English
French
Spanish
No Subtitle
Others
Code A A

4) Press the ENTER button.

Notes

- Some DVD video discs may be set to display subtitles in a different language than you selected. A prior subtitle language may be programmed on the disc.
- Some DVD video discs allow you to change subtitle selections only via the disc menu. If this is the case, press the MENU button and choose the appropriate subtitle language from the selection on the disc menu.



Display
On-Screen Displays On
Background Gray
Screen Saver On

On-Screen Displays DVD-V DVD-A VCD CD

Off: Operational modes (e.g. “Play”, “ 🎥”) are not displayed.
On: Operational modes (e.g. “Play”, “ 🎥”) are displayed on-screen.

Background DVD-V DVD-A VCD CD

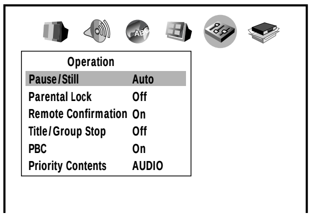
Blue:	Blue background.
Gray:	Gray background.
Capture:	To use a picture you sampled and stored in the memory using the Capture feature 52 as a background.
Jacket:	To use the jacket picture included on some discs as a background. If it is not included, a gray background will be substituted.

Screen Saver DVD-V

Off: The screen saver is disengaged.
On: The screen saver operates.

Customizing the Function Settings (continued)

Setting details



Operation
Pause/Still Auto
Parental Lock Off
Remote Confirmation On
Title/Group Stop Off
PBC On
Priority Contents AUDIO

Pause/Still DVD-V

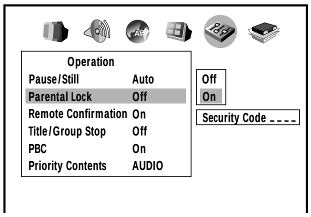
Auto: For normal use. Still and fast motion images can be paused.
Frame: The resolution of still pictures is improved, so that you can make a motionless picture more clearer when you pause it.

Parental Lock DVD-V

DVD video discs equipped with the parental lock function are rated according to their content. The contents allowed by a parental lock level and the way a DVD video disc can be controlled may vary from disc to disc. For example, if the disc allowed you could edit out violent scenes unsuitable for children and replace them with more suitable scenes, or lock out playback of the disc altogether.

- DVD video discs may or may not respond to the parental lock settings. This is not a defect in the DVD player. Make sure this function works with your DVD video discs.

Off: The parental lock feature does not function. After pressing the ENTER button, follow step 1) below.
On: To activate the parental lock feature or change the settings. After pressing the ENTER button, follow steps 1) - 3) below.



Operation
Pause/Still Auto
Parental Lock Off
Remote Confirmation On
Title/Group Stop Off
PBC On
Priority Contents AUDIO

Off
On
Security Code _ _ _ _

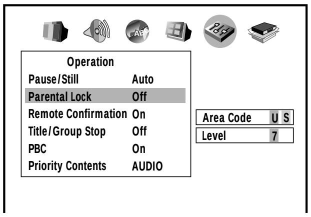
1) Press the number buttons to create a personal 4-digit security code, then press the ENTER button.
If you make a mistake before pressing the ENTER button, press the CLEAR button and enter your 4-digit security code again.

2) Enter the code of a country/area whose standards were used to rate the DVD video disc, referring to the list below.

Country/Area	Code
AUSTRALIA	AU
BELGIUM	BE
CANADA	CA
CHINA	CN
CHINA HONG KONG	HK
DENMARK	DK
FINLAND	FI
FRANCE	FR
GERMANY	DE
INDONESIA	ID
ITALY	IT
JAPAN	JP
MALAYSIA	MY
NETHERLANDS	NL
NORWAY	NO
PHILIPPINES	PH
RUSSIAN FEDERATION	RU
SINGAPORE	SG
SPAIN	ES
SWEDEN	SE
SWITZERLAND	CH
TAIWAN	TW
THAILAND	TH
UNITED KINGDOM	GB
UNITED STATES	US

a) Select the first character by moving the cursor control (▲/▼).
b) Move the cursor control (◄/►) to shift and select the second character by moving the cursor control (▲/▼).
c) Press the ENTER button.

3) Move the cursor control (▲ / ▼) to select the parental lock level, then press the ENTER button.



Operation

Pause/Still	Auto
Parental Lock	Off
Remote Confirmation	On
Title/Group Stop	Off
PBC	On
Priority Contents	AUDIO

Area Code	U S
Level	7

You cannot play DVD video discs rated higher than the level you selected unless you cancel the parental lock function.
For example, when you select level 7, discs rated higher than level 7 are locked out and cannot be played.

The parental lock level is equivalent to the following USA movie ratings.

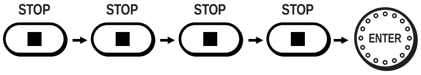
Level 7: NC-17
Level 6: R
Level 4: PG 13
Level 3: PG
Level 1: G

The parental lock levels for other countries/areas than U.S. are included for future use. Check the appropriate parental lock level when you buy a DVD video disc equipped with the parental lock feature in the future.

■ **To change the parental lock level**
Follow steps 1) - 3).

■ **To change your 4-digit security code**

1) After selecting “On” or “Off,” press the STOP button four times, then press the ENTER button.



The 4-digit security code is cleared.

2) Press the number buttons to create a new 4-digit security code.
3) Press the ENTER button.

Remote Confirmation DVD-V DVD-A VCD CD

Off: The beeper does not sound.
On: The beeper sounds with each remote operation.

Title/Group Stop DVD-V DVD-A

Off: The DVD player continues after playback of a title/group is completed.
On: The DVD player stops after playback of a title/group is completed.

PBC VCD

Off: When playing a VIDEO CD without using the menu.
On: To use the menu when playing a PBC-featured VIDEO CD.

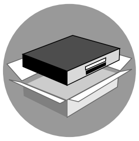
Priority Contents DVD-V DVD-A

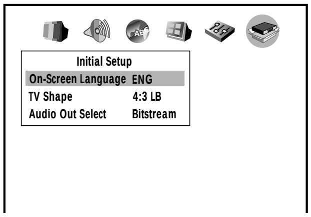
Select the playback priority between DVD video and DVD audio format signals when playing a DVD disc that contains both DVD video and DVD audio format signals.

DVD-AUDIO: DVD audio format signals take priority over DVD video format signals.
DVD-VIDEO: DVD video format signals take priority over DVD audio format signals.

Customizing the Function Settings (continued)

Setting details



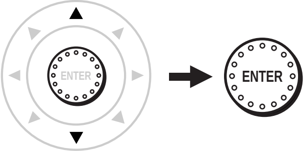


Initial Setup

On-Screen Language	ENG
TV Shape	4:3 LB
Audio Out Select	Bitstream

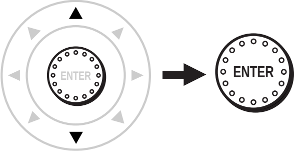
Initial Setup DVD-V DVD-A VCD CD

1) Move the cursor control (▲ / ▼) to select “On-Screen Language,” and press the **ENTER** button.



2) Select a language moving the cursor control (▲ / ▼), and press the **ENTER** button.

See page 60, “On-screen Language.”



3) Make your selection in the same manner as step 1) then step 2).

See page 56, “TV Shape.”
See page 58, “Audio Out Select.”

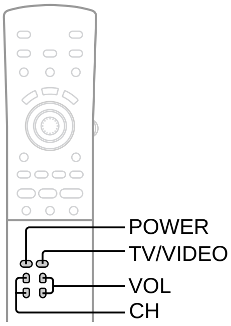
Table of Languages

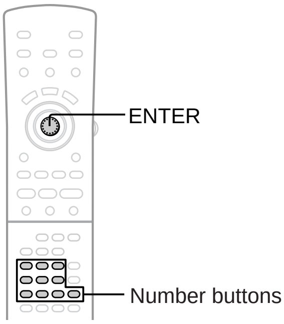
Table of languages and their abbreviations

Abbreviation	Language
– – –	No alternate language
CHI (ZH)	Chinese
DUT (NL)	Dutch
ENG (EN)	English
FRE (FR)	French
GER (DE)	German
ITA (IT)	Italian
JPN (JA)	Japanese
KOR (KO)	Korean
MAY (MS)	Malay
SPA (ES)	Spanish
AA	Afar
AB	Abkhazian
AF	Afrikaans
AM	Amharic
AR	Arabic
AS	Assamese
AY	Aymara
AZ	Azerbaijani
BA	Bashkir
BE	Belorussian
BG	Bulgarian
BH	Bihari
BI	Bislama
BN	Bengali, Bangla
BO	Tibetan
BR	Breton
CA	Catalan
CO	Corsican
CS	Czech
CY	Welsh
DA	Danish
DZ	Bhutani
EL	Greek
EO	Esperanto
ET	Estonian
EU	Basque
FA	Persian
FI	Finnish
FJ	Fiji
FO	Faroese
FY	Frisian
GA	Irish
GD	Scottish Gaelic
GL	Galician
GN	Guarani
GU	Gujarati
HA	Hausa
HI	Hindi
HR	Croatian
HU	Hungarian
HY	Armenian
IA	Interlingua
IE	Interlingue
IK	Inupiak
IN	Indonesian
IS	Icelandic
IW	Hebrew
JI	Yiddish
JW	Javanese
KA	Georgian
KK	Kazakh
KL	Greenlandic
KM	Cambodian
KN	Kannada
KS	Kashmiri
KU	Kurdish
KY	Kirghiz
LA	Latin
LN	Lingala
LO	Laotian
LT	Lithuanian
LV	Latvian, Lettish
MG	Malagasy
MI	Maori
MK	Macedonian
ML	Malayalam
MN	Mongolian
MO	Moldavian
MR	Marathi
MT	Maltese
MY	Burmese
NA	Nauru
NE	Nepali
NO	Norwegian
OC	Occitan
OM	(Afan) Oromo
OR	Oriya
PA	Panjabi
PL	Polish
PS	Pashto, Pushto
PT	Portuguese
QU	Quechua
RM	Rhaeto-Romance
RN	Kirundi
RO	Rumanian
RU	Russian
RW	Kinyarwanda
SA	Sanskrit
SD	Sindhi
SG	Sango
SH	Serbo-Croatian
SI	Singhalese
SK	Slovak
SL	Slovenian
SM	Samoan
SN	Shona
SO	Somali
SQ	Albanian
SR	Serbian
SS	Siswati
ST	Sesotho
SU	Sundanese
SV	Swedish
SW	Swahili
TA	Tamil
TE	Telugu
TG	Tajik
TH	Thai
TI	Tigrinya
TK	Turkmen
TL	Tagalog
TN	Setswana
TO	Tongan
TR	Turkish
TS	Tsonga
TT	Tatar
TW	Twi
UK	Ukrainian
UR	Urdu
UZ	Uzbek
VI	Vietnamese
VO	Volapük
WO	Wolof
XH	Xhosa
YO	Yoruba
ZU	Zulu

Operating a TV with the remote control

You can operate the basic functions of selected TVs using the supplied remote control.





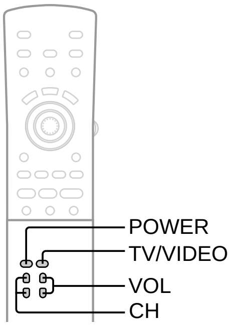
Operating a TV with the remote control

Preparation

Follow the instruction of “To program the remote control” to set the brand code.

Point the remote control at your TV, and use buttons as follows.

POWER	To turn the power on and off.
TV/VIDEO	To select a video input.
VOL ▲/▼	To adjust the volume.
CH ▲/▼	To select a channel.

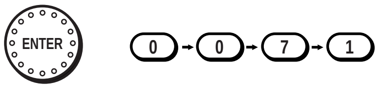


Close the cover to use these buttons.

■ To program the remote control

1 While holding down **ENTER**, press the **number buttons** that correspond to your TV’s brand code referring to the list on the next page.

e.g. To Program brand code 0071.



Hold down.

2 Release **ENTER**.
The DVD remote control memorizes the selected brand code.

Notes

- The remote control is programmed at the factory to operate TOSHIBA TVs.
- A single brand may use different codes depending on the particular model. Enter the correct number referring to the brand code table.
- For some brands, several brand codes are provided. Try each of them until the remote control operates your TV.
- Some TVs may not respond to all of the functions in the table above, or may not be operated at all with this remote control. In this case, operate that TV with its own remote control.
- If you replace the remote control’s batteries, remember to reprogram the brand codes for TV.

Brand code table

Brand name	Brand code				
TOSHIBA	0001	0071	0211	0571	
BELL & HOWELL	0471	0651	0071	0281	0441
CARVER	0201	0251	0281	0411	0501
CITIZEN	0201	0251			
CURTIS MATHES	0471	0651	0071	0281	0441
	0311	0431	0521	0571	
EMERSON	0201	0231	0471	0481	0571
	0581	0651			
FISHER	0041	0121	0181	0201	0281
	0471	0571	0651		
GE	0941	0951	0961	0971	0981
	0991	1041			
GOLDSTAR	0201	0251	0281	0411	0501
HALLMARK	0001	0511	0201	0231	0471
	0481	0571	0581	0651	
HITACHI	0021	0221	0251	0351	0371
	0381	0431	0571	0641	0751
INFINITY	0501				
JBL	0501				
JVC	0311	0431	0521	0571	
LXI	0001	0511	0851		
MAGNAVOX	0501	0071	0191	0221	0461
	0471	0591	0611	0651	
MARANTZ	0201	0501			
MEMOREX	0411				
MGA	0201				
MITSUBISHI	0201	0321	0331	0451	0501
	0511	0571	0651	0771	
MTC	0201	0251			
NAD	0001	0511			
OPTONICA	0511	0851	0571	0201	0501
PANASONIC	0371	0501	0511	0531	0761
	0841	0911	1061		
PHILCO	0071	0111	0181	0201	0271
	0301	0461	0501	0651	
PHILIPS	0071	0191	0221	0461	0471
	0501	0591	0611	0651	
PROTON	0201				
PULSAR	0931	0071	0091	0281	0291
	0341	0471	0651		
QUASAR	0371	0501	0511	0531	0761
	0841	0911			
RADIO SHACK	0631	1001	1011	1021	1031
	0851	0201	0501	0481	0321
	0331	0501	0651	0771	
RCA	0971	1071	1081	1091	0201
	1041	0501			
REALISTIC	0631	1001	1011	1021	1031
	0851	0201	0501	0481	0321
	0331	0501	0651	0771	
RUNCO	0071	0091	0281	0291	0341
	0471	0651			
SAMSUNG	0171	0181	0251	0281	0411
	0491	0501	0631	0661	0791
SANYO	0021	0041	0081	0121	0171
	0181	0201	0231	0241	0451
	0571	0651	0671	0701	0711
	0721				
SEARS	0001	0191	0491	0201	0501
	0071	0211	0571	0041	0121
	0181	0201	0281	0471	0651
SHARP	0851	0511	0571	0201	0501
SONY	0441	0451	0571	0681	
SOUNDESIGN	0201	0481			
SYLVANIA	0501	0071	0191	0221	0461
	0471	0591	0611	0651	0371
	0511	0531	0841		
TANDY	0171	0511	0851	0571	0201
	0501				
TECHNICS	0371	0501	0511	0531	0761
	0841	0911			
TEKNIKA	0201	0251	0481	0501	
TMK	0201	0251			
VIDTECH	0201	0501	0401	0411	0851
	0511				
WARDS	0201	0501	0001	0191	0481
	0491	0851	0511	0571	0071
	0281	0441			
ZENITH	0931				

Others

- Before Calling Service Personnel
- Specifications
- LIMITED WARRANTY DVD PLAYER

Before Calling Service Personnel

Check the following guide for the possible cause of a problem before contacting service.

Symptoms and correction

Symptom	Cause	Correction	Page
No power.	• The power plug is disconnected.	• Connect the power plug securely into the wall outlet.	18
The DVD player turned off by itself.	• The automatic power off function turned the unit off.	• Press the PLAY button.	27
No picture.	• The TV is not set to receive DVD signal output.	• Select the appropriate video input mode on the TV so the picture from the DVD player appears on the TV screen.	26
	• The video cable is not connected securely.	• Connect the video cable securely into the appropriate jacks.	18, 19
No sound.	• The equipment connected with the audio cable is not set to receive DVD signal output.	• Select the correct input mode of the audio receiver so you can listen to the sound from the DVD player.	26
	• The audio cable is not connected securely.	• Connect the audio cable securely into the appropriate jacks.	18-23
	• The audio receiver or TV is turned off.	• Turn on the equipment connected with the audio cable.	26
	• The setting of output sound format is incorrect.	• Select the proper audio setting.	42, 54 58
The playback picture has occasional distortion.	• The disc is dirty.	• Eject the disc and clean it.	9
	• It is in fast forward or fast reverse playback.	• Sometimes a small amount of picture distortion may appear. This is not a malfunction.	–
Brightness is unstable or noises are present in the playback pictures.	• The effect of copy protection.	• Connect the DVD player directly to the TV. Avoid connecting the DVD player to a VCR or TV/VCR combination.	18
The DVD player does not start playback.	• No disc is inserted.	• Insert a disc.	26
	• An unplayable disc is inserted.	• Insert a playable disc. (Check the disc type and color system.)	10
	• The disc is placed upside down.	• Place the disc with the playback side down.	26
	• The disc is not placed within the guide.	• Place the disc correctly inside the guide on the disc tray.	26
	• The disc is dirty.	• Clean the disc.	9
	• The parental lock function is set.	• Cancel the parental lock function or change the parental lock level.	54, 62
Playback does not follow the course of the disc’s program.	• It is in the mode of repeat playback, memory playback, etc.	• These operations may prevent a proper progress of the contents.	–
Buttons do not work.	• Power supply fluctuations or other abnormalities such as static electricity may interrupt correct operations.	• Turn the power on or off with the POWER button. Or disconnect the power plug and insert it into the wall outlet again.	–
The remote control does not work properly.	• The remote control is not pointed at the remote sensor of the DVD player.	• Point the remote control at the remote sensor of the DVD player.	15
	• The remote control is too far from the DVD player.	• Operate the remote control within about 7 m.	15
	• The batteries in the remote control are exhausted.	• Replace the batteries with new ones.	15

Specifications

DVD player / outputs / supplied accessories

DVD player

Power supply	120 V AC, 60 Hz
Power consumption	26 W
Mass	11.0 kg
External dimensions	430 × 118 × 315 mm (W/H/D)
Signal system	Standard NTSC
Laser	Semiconductor laser, wavelength 650 nm / 780 nm
Frequency range	DVD linear sound : 48 kHz sampling 4 Hz to 22 kHz 96 kHz sampling 4 Hz to 44 kHz 192 kHz sampling 4 Hz to 88 kHz
Signal-to-noise ratio	More than 120 dB
Audio dynamic range	More than 120 dB
Harmonic distortion	Less than 0.0006 %
Wow and flutter	Below measurable level (less than ±0.001 % (W.PEAK))
Operating conditions	Temperature: 5 °C to 35 °C, Operation status: Horizontal

Outputs

Video output	1.0 V (p-p), 75 Ω, negative sync., pin jack × 1
S video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., Mini DIN 4-pin × 1 (C) 0.286 V (p-p), 75 Ω
Component video output	(Y) 1.0 V (p-p), 75 Ω, negative sync., pin jack × 1 (P_B)/(P_R) 0.7 V (p-p), 75 Ω, pin jack × 2
Audio output (BITSTREAM/PCM OPTICAL)	Optical connector × 1
Audio output (BITSTREAM/PCM COAXIAL)	0.5 V (p-p), 75 Ω, pin jack × 1
Audio output (2CH AUDIO)	2.0 V (rms), 330 Ω, pin jacks (L, R) × 1
Audio output (5.1CH SURROUND)	2.0 V (rms), 600 Ω, pin jacks × 6

Supplied Accessories

Audio/video cable	1
Remote control (SE-R0035)	1
Batteries (AAA)	2
Power cord	1

- Designs and specifications are subject to change without notice.

LIMITED WARRANTY DVD PLAYER

Toshiba America Consumer Products, Inc. (“TACP”), Toshiba Hawaii (“THI”) and Toshiba Canada Limited (“TCL”) make the following limited warranties. These limited warranties extend to original purchaser or any person receiving this set as a gift from the original purchaser and to no other purchaser or transferee.

Limited Ninety (90) Day Warranty

TACP/THI warrant this product against defects in materials or workmanship for a period of ninety (90) days after the date of original retail purchase. During this period, TACP/THI will repair or replace a defective product or part, at their option, with a new or refurbished product or part without charge to you. You must deliver the entire product to a TACP/THI Authorized Service Station. You are responsible for all transportation and insurance charges for the unit to and from the Authorized Service Station. If you live in the U.S.A. you may, at your option, return your DVD Unit to:

Toshiba America Consumer Products Inc.
Returns Center
1420C Toshiba Dr.
Lebanon, TN 37087

Upon receipt we will, at our option, exchange the DVD Unit with a new or refurbished unit. **Canadian consumers are requested to contact TCL. In Hawaii consumers are requested to contact THI.**

Limited One (1) Year Warranty

TACP/THI further warrant the parts in this product against defects in materials or workmanship for a period of one (1) year after the date of original retail purchase. During this period, TACP/THI will repair or replace a defective product or part, at their option, with a new or refurbished product or part without charge to you, except that if a defective part is replaced after ninety (90) days from the date of the original retail purchase you pay labor charges involved in the replacement. You must also deliver the entire product to a TACP/THI Authorized Service Station. You are responsible for all transportation and insurance charges for the unit to and from the Authorized Service Station. If you live in the U.S.A. you may, at your option, return your DVD Unit to:

Toshiba America Consumer Products Inc.
Returns Center
1420C Toshiba Dr.
Lebanon, TN 37087

Upon receipt we will, at our option, exchange the DVD Unit with a new or refurbished unit. **Canadian Consumers are requested to contact TCL. In Hawaii consumers are requested to contact THI.**

Rental Units

The warranty for rental units begin with the first rental or thirty (30) days from the date of shipment to the rental firm, whichever comes first.

Commercial Units

Products sold and used for commercial use have a limited ninety (90) day warranty for all parts and labor.

Owner’s Manual

You should read the owner’s manual thoroughly before operating this product. You should complete and mail the enclosed Demographic card within ten (10) days after you, or the person who has given you this product as a gift, purchased this product. This is one way to enable TACP to provide you with better customer service and improved products. Failure to return the card will not affect your rights under this warranty.

Your Responsibility

The above warranties are subject to the following conditions:

(1) You must retain your bill of sale or provide other proof of purchase.
(2) You must notify a TACP/THI/TCL /Authorized Service Station within thirty (30) days after you discover a defective product or part.
(3) All warranty servicing of this product must be made by a TACP/THI/TCL Authorized Service Station.
(4) U.S.A. warranties are effective only if the product is purchased and operated in the Continental U.S.A. or Puerto Rico.
(5) Labor service charges for set installation. Set up, adjustment of customer controls and installation or repair of antenna systems are not covered by this warranty. Reception problems caused by inadequate antenna systems are your responsibility.
(6) Warranties extend only to defects in materials or workmanship as limited above and do not extend to any product or parts which have been lost or discarded by you or to damage to products or parts caused by misuse, accident, damage caused by Acts of God, such as lighting or fluctuations in electric power, improper installation, improper maintenance or use in violation of instructions furnished by us; or to units which have been altered or modified without authorization of TACP/THI/TCL or to damage to products or part thereof which have had the serial number removed, altered, defaced or rendered illegible.
(7) Should you elect to return your DVD Unit to TACP after the ninety (90) days and within one (1) year, or after the warranty period has expired: Call (800)-631-3811 to receive information concerning an exchange price. Payment must be enclosed with product in the form of a certified check or money order including reason for return.
(8) Physically damaged DVD Units are not acceptable for repair or exchange whether in or out of warranty and will be returned as received.

How to Obtain Warranty Service

1. Refer to the troubleshooting guide in your owner's manual. This check list may solve your problem.
2. In the U.S.A., only call the TACP toll free number 800-631-3811, or if in Hawaii or Canada see listing below within (30) days after you find a defective product or part.
3. Arrange for the delivery of the product to the TACP/THI/TCL Authorized Service Station or TACP Return Center. Products shipped to the Service Station must be insured and safely and securely packed, preferably in the original shipping carton, and a letter explaining the defect and also a copy of the bill of sale or other proof of purchase must be enclosed.

In the Continental United States contact:

Toll Free
800-631-3811

In Hawaii contact:
Toshiba Hawaii Inc.
327 Kamakee Street
Honolulu, HA 96814
(808)-521-5377

In Canada contact:
Consumer Electronics Group
191 McNabb Street
Markham, Ontario L3R 8H2
(905)-470-5400

Consumer Electronics Group
22171 Fraserwood Way
Richmond, B.C. V6W 1J5
(604)-303-2500

Consumer Electronics Group
1643 North Service Road
Droval, QC H9P 1J1
(514)-856-4100

All warranties implied by state law, including the implied warranties of merchantability and fitness for a particular purpose, are expressly limited to the duration of the limited warranties set forth above. With the exception of any warranties implied by state law as hereby limited, the foregoing warranty is exclusive and in lieu of all other warranties, guarantees, agreements and similar obligations of manufacturer or seller with respect to the repair or replacement of any parts. In no event shall TACP/THI be liable for consequential or incidental damages.

No person, agent, distributor, dealer or company is authorized to change, modify or extend the terms of these warranties in any manner whatsoever. The time within which an action must be commenced to enforce any obligation of TACP/THI arising under the warranty or under any statute, or law of the United States or any state thereof, is hereby limited to ninety (90) days from the date you discover or should have discovered, the defect. This limitation does not apply to implied warranties arising under state law.

This warranty gives you specific legal rights and you may also have other rights which may vary from state to state. Some states do not allow limitation on how long an implied warranty lasts, when an action may be brought, or the exclusion or limitation of incidental or consequential damages, so the above provisions may not apply to you.

ATTENTION CANADIAN CONSUMERS:
Canadian consumers are requested to complete the special Canadian "Warranty Registration Form" enclosed, and forward this completed form with a copy of bill of sale to TOSHIBA OF CANADA to "Register and Validate" their warranty. Product must be purchased from an Authorized Canadian Dealer. Products purchased in the U.S.A. and used in Canada are not covered by these warranties.

IMPORTANT: PACKING AND SHIPPING INSTRUCTION
When you send the product to a Service Station, you must use the original carton box and packing material, then insert the original carton box containing the unit into another carton using more packing material.

2. LOCATION OF MAIN PARTS AND MECHANISM PARTS

2-1. Location of Main Parts

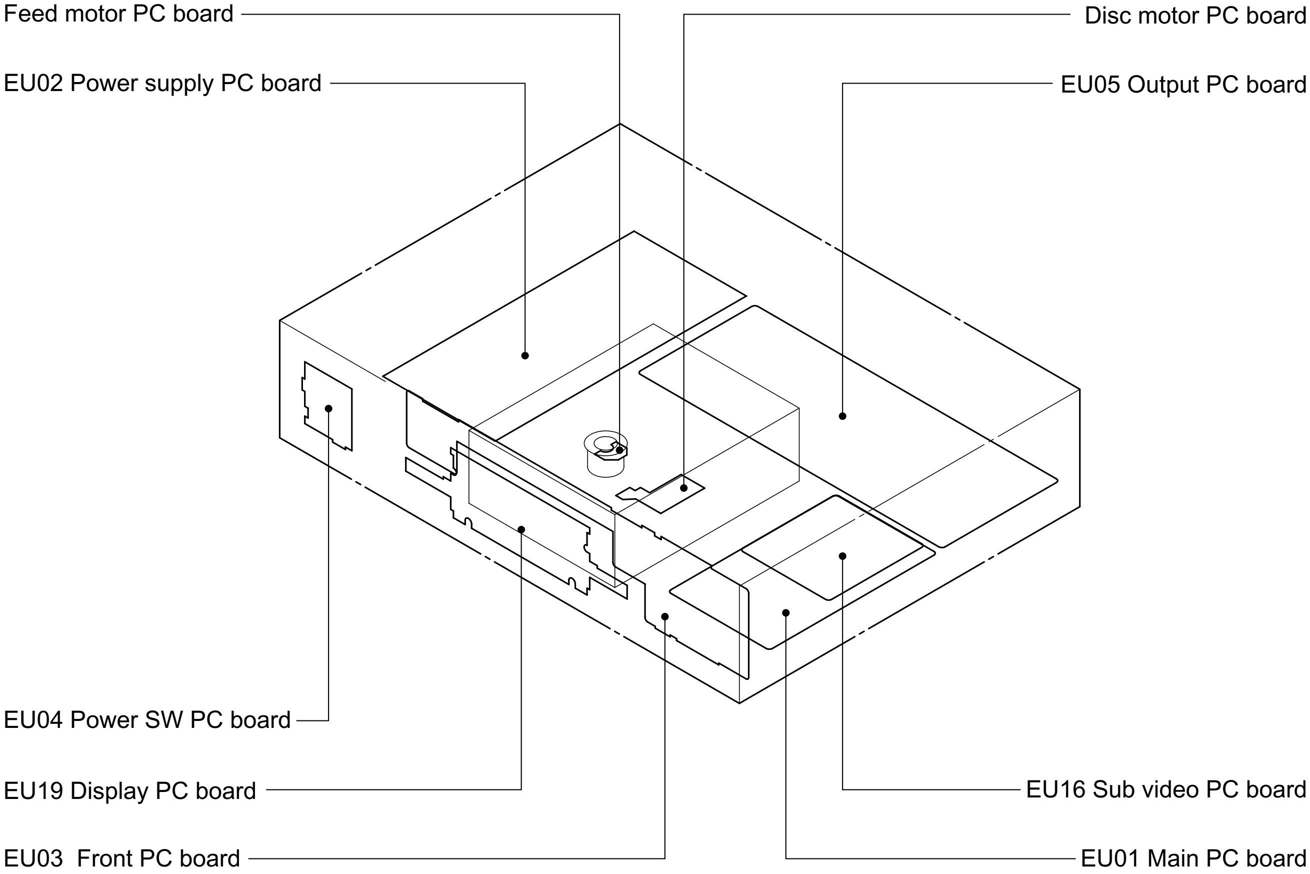

Feed motor PC board
Disc motor PC board
EU02 Power supply PC board
EU05 Output PC board
EU04 Power SW PC board
EU19 Display PC board
EU16 Sub video PC board
EU03 Front PC board
EU01 Main PC board

Fig. 1-2-1

2-2. Location of Mechanism Parts

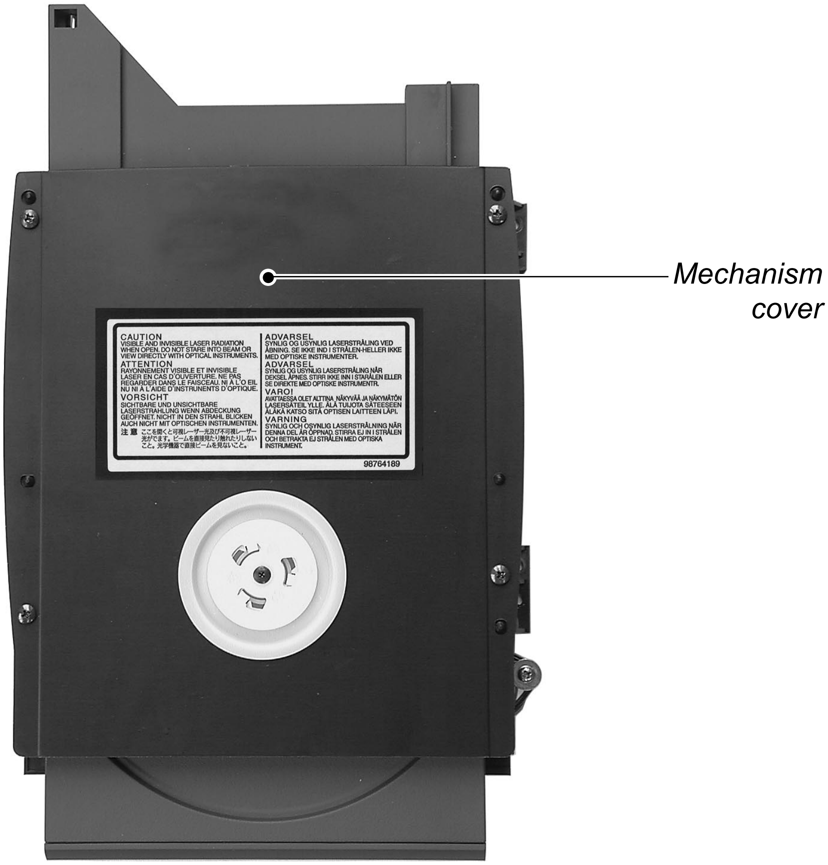

Mechanism cover

Fig. 1-2-2 Mechanism chassis assembly (Top side)

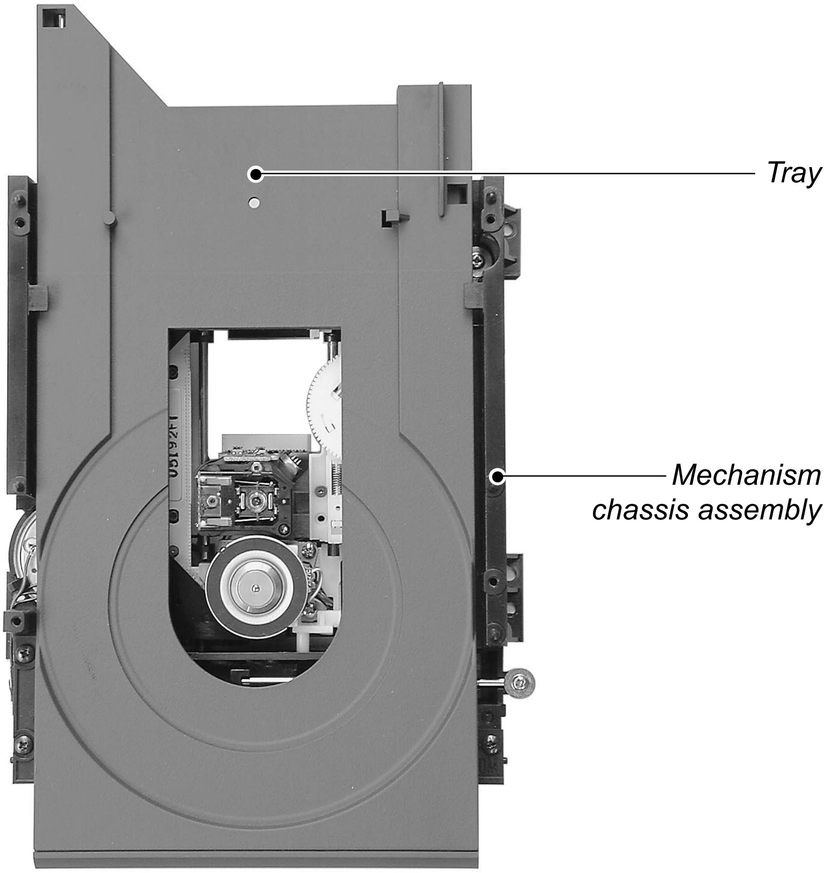

Tray
Mechanism chassis assembly

Fig. 1-2-3 Mechanism chassis assembly (Bottom side)

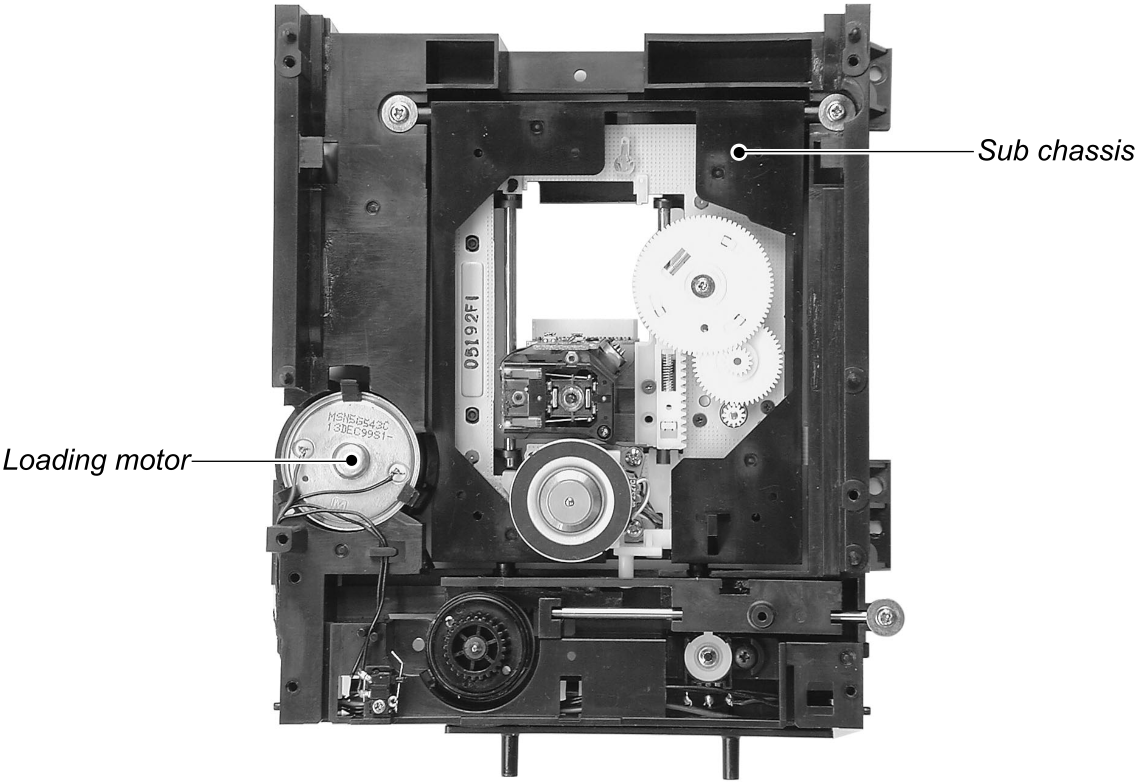

Sub chassis
Loading motor
MSN5664 3C
13DEC99S1
05192FI

Fig. 1-2-4 Mechanism chassis assembly (Internal side)

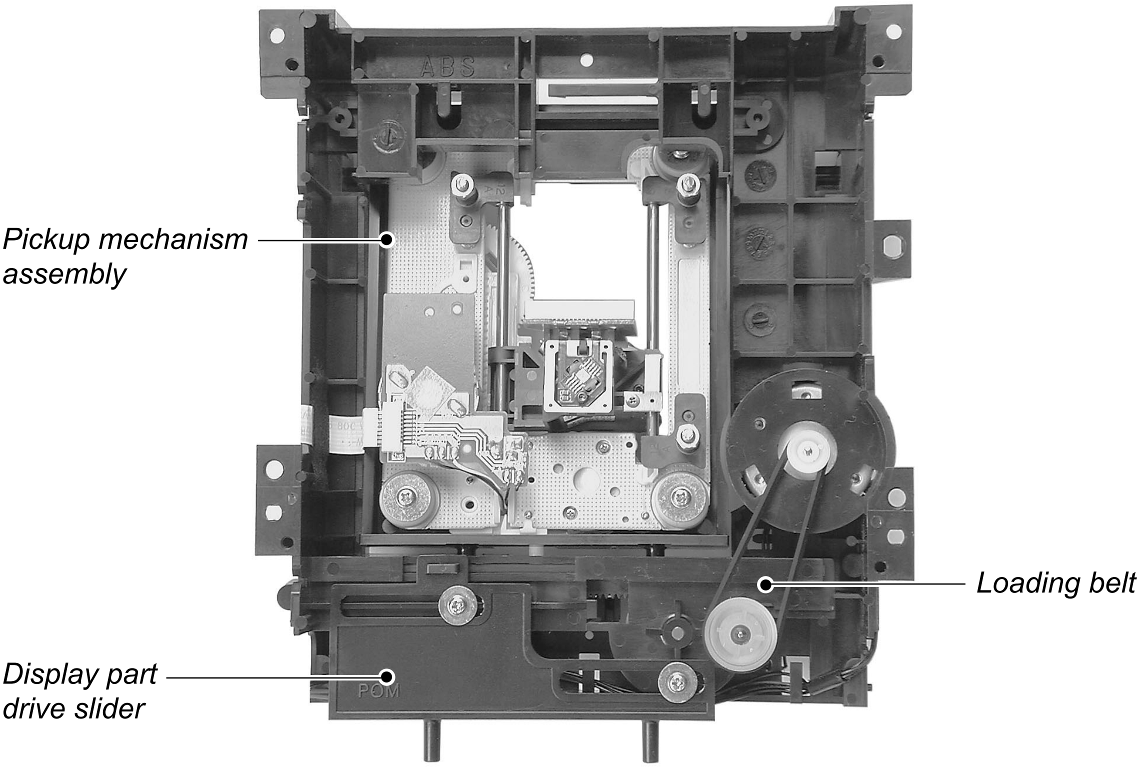

Pickup mechanism assembly
Loading belt
Display part drive slider
ABS
POM

Fig. 1-2-5 Mechanism chassis assembly (Bottom side)

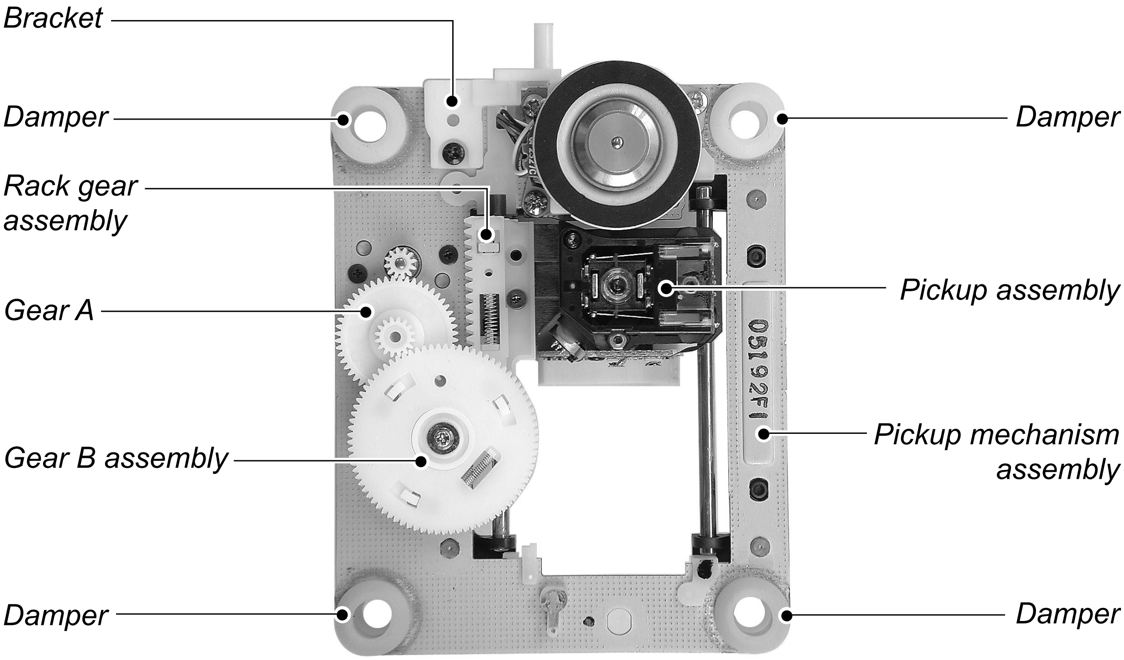

Bracket
Damper
Damper
Rack gear assembly
Gear A
Pickup assembly
Gear B assembly
Pickup mechanism assembly
Damper
Damper

Fig. 1-2-6 Pickup mechanism chassis assembly (Top side)

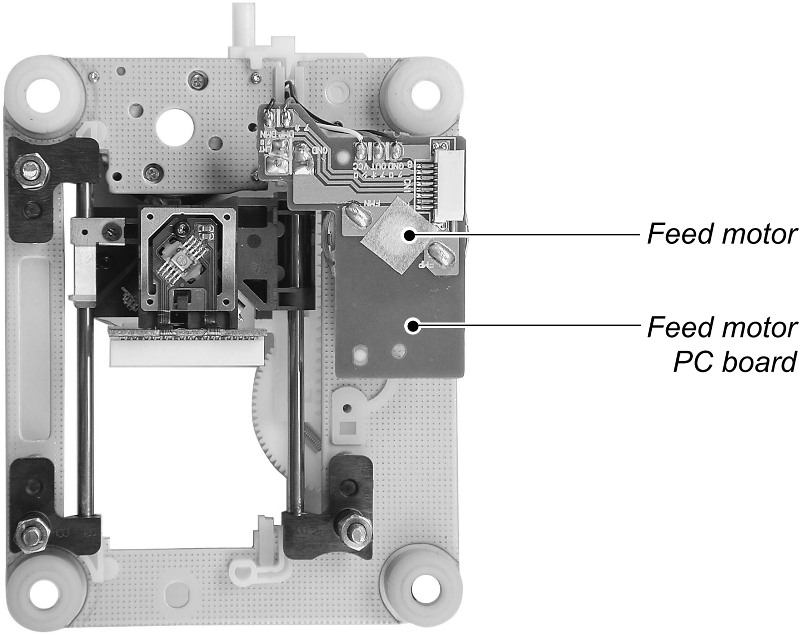

Feed motor
Feed motor PC board

Fig. 1-2-7 Pickup mechanism chassis assembly (Bottom side)

3. TROUBLESHOOTING

3-1. Main Circuit

3-1-1. Servo System

(1) Initial Operation after Power ON

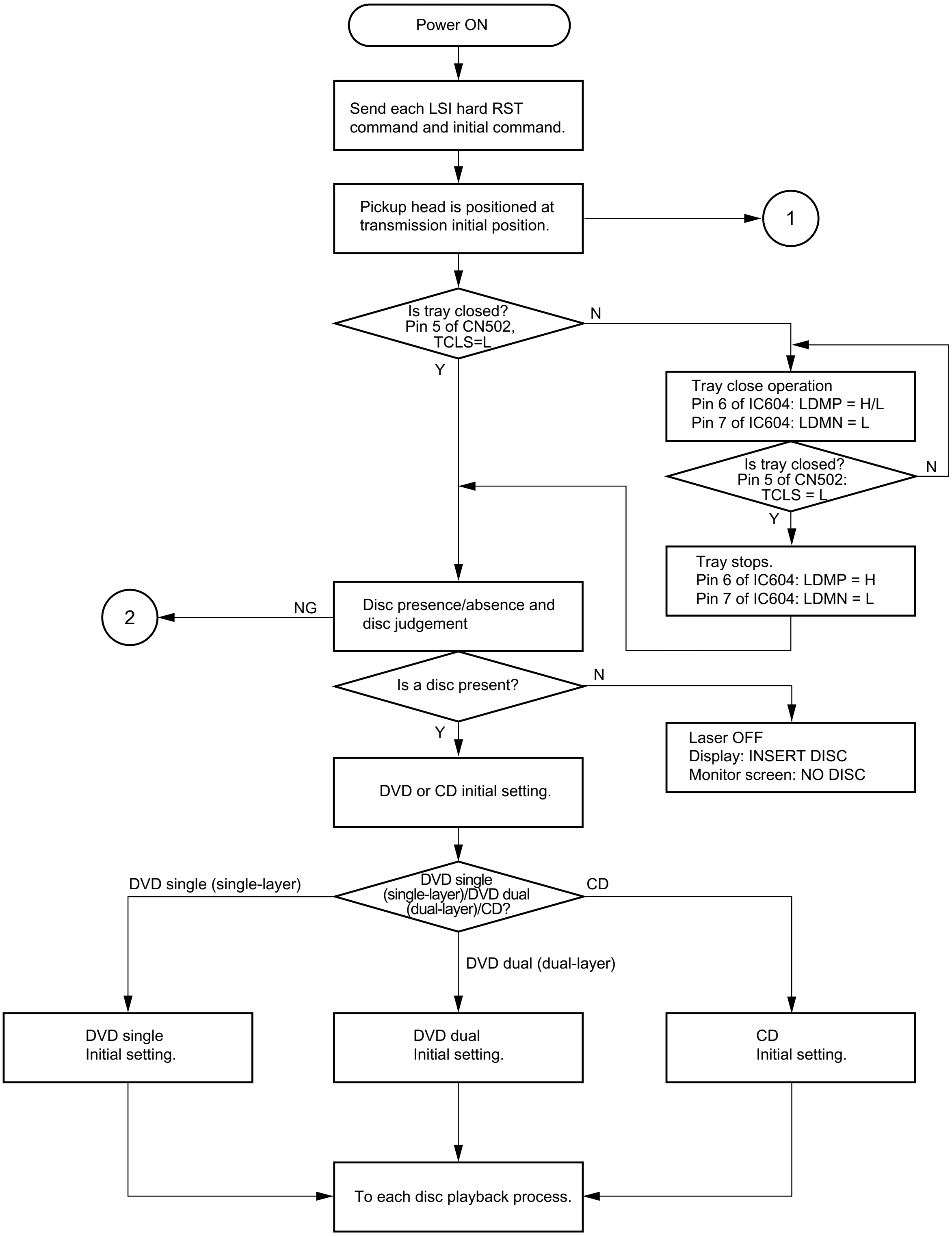
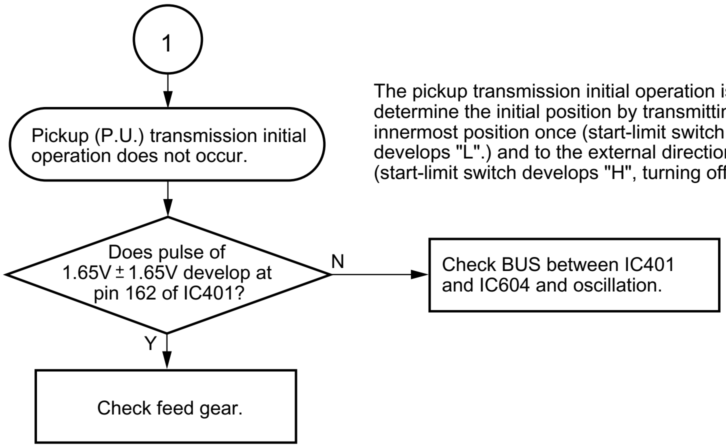

Power ON
Send each LSI hard RST command and initial command.
Pickup head is positioned at transmission initial position.
1
Is tray closed? Pin 5 of CN502, TCLS=L
N
Y
Tray close operation
Pin 6 of IC604: LDMP = H/L
Pin 7 of IC604: LDMN = L
Is tray closed? Pin 5 of CN502: TCLS = L
N
Y
Tray stops.
Pin 6 of IC604: LDMP = H
Pin 7 of IC604: LDMN = L
2
NG
Disc presence/absence and disc judgement
Is a disc present?
N
Y
Laser OFF
Display: INSERT DISC
Monitor screen: NO DISC
DVD or CD initial setting.
DVD single (single-layer)
DVD single (single-layer)/DVD dual (dual-layer)/CD?
CD
DVD dual (dual-layer)
DVD single Initial setting.
DVD dual Initial setting.
CD Initial setting.
To each disc playback process.

Fig. 1-3-1


1
Pickup (P.U.) transmission initial operation does not occur.
Does pulse of 1.65V ± 1.65V develop at pin 162 of IC401?
N
Check BUS between IC401 and IC604 and oscillation.
Y
Check feed gear.

The pickup transmission initial operation is carried out to determine the initial position by transmitting the pickup to the innermost position once (start-limit switch (pin 4 of CN503) develops "L".) and to the external direction at low speed (start-limit switch develops "H", turning off the switch.).

Fig. 1-3-2

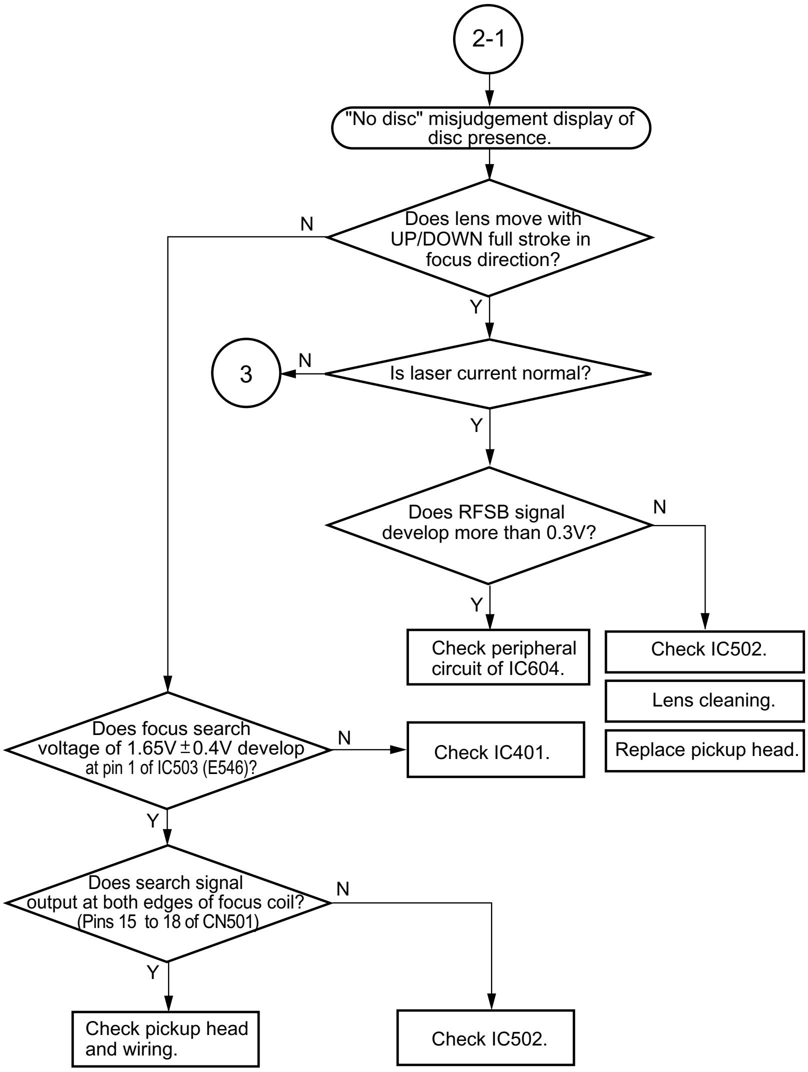

2-1
"No disc" misjudgement display of disc presence.
Does lens move with UP/DOWN full stroke in focus direction?
N
Y
Is laser current normal?
N
3
Y
Does RFSB signal develop more than 0.3V?
N
Y
Check peripheral circuit of IC604.
Check IC502.
Lens cleaning.
Replace pickup head.
Does focus search voltage of 1.65V ± 0.4V develop at pin 1 of IC503 (E546)?
N
Check IC401.
Y
Does search signal output at both edges of focus coil? (Pins 15 to 18 of CN501)
N
Y
Check pickup head and wiring.
Check IC502.

Fig. 1-3-3

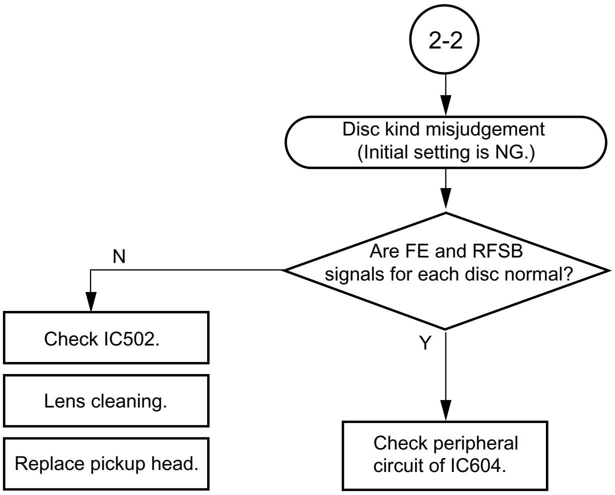
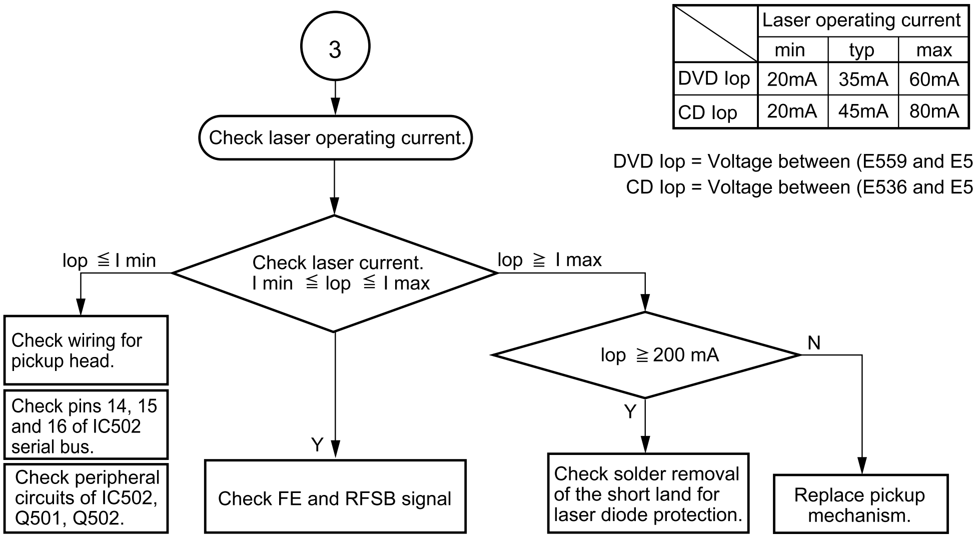

2-2
Disc kind misjudgement
(Initial setting is NG.)
Are FE and RFSB
signals for each disc normal?
N
Y
Check IC502.
Lens cleaning.
Replace pickup head.
Check peripheral
circuit of IC604.

Fig. 1-3-4


3
Check laser operating current.
Iop ≦ I min
Check laser current.
I min ≦ Iop ≦ I max
Iop ≧ I max
Check wiring for
pickup head.
Check pins 14, 15
and 16 of IC502
serial bus.
Check peripheral
circuits of IC502,
Q501, Q502.
Y
Check FE and RFSB signal
Iop ≧ 200 mA
N
Y
Check solder removal
of the short land for
laser diode protection.
Replace pickup
mechanism.

	Laser operating current		
	min	typ	max
DVD Iop	20mA	35mA	60mA
CD Iop	20mA	45mA	80mA

DVD Iop = Voltage between (E559 and E534) /10Ω
CD Iop = Voltage between (E536 and E534) /10Ω

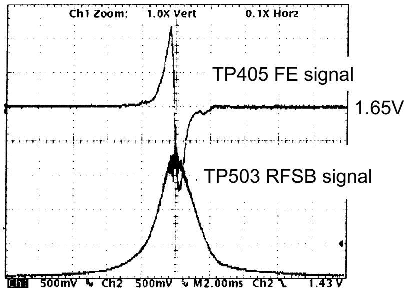
To turn on each laser diode forcibly, press the following buttons on the remote controller.
DVD LD: ZOOM, 0, 3, 0, ZOOM
CD LD: ZOOM, 0, 3, 1, ZOOM
After checked the laser current, press POWER or OPEN/CLOSE button to turn it off.

CAUTION

- The laser ray emitting out from the pickup head is very harmful to your eyes.
  Keep your eyes from the objective lens at least 300mm distance during the pickup head operating.
- When you perform solder removal work, please turn OFF a set power supply and perform the ground of human body and a tool.

Fig. 1-3-5

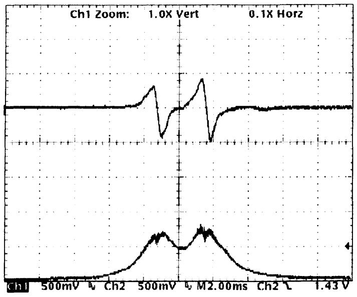
DVD single (single-layer) disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-6

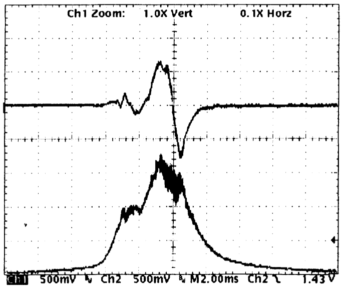
DVD dual (dual-layer) disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-7

CD disc detection waveform



V : 500 mV/div
H : 2 ms/div

Fig. 1-3-8

(2) Picture appears (PLAY)

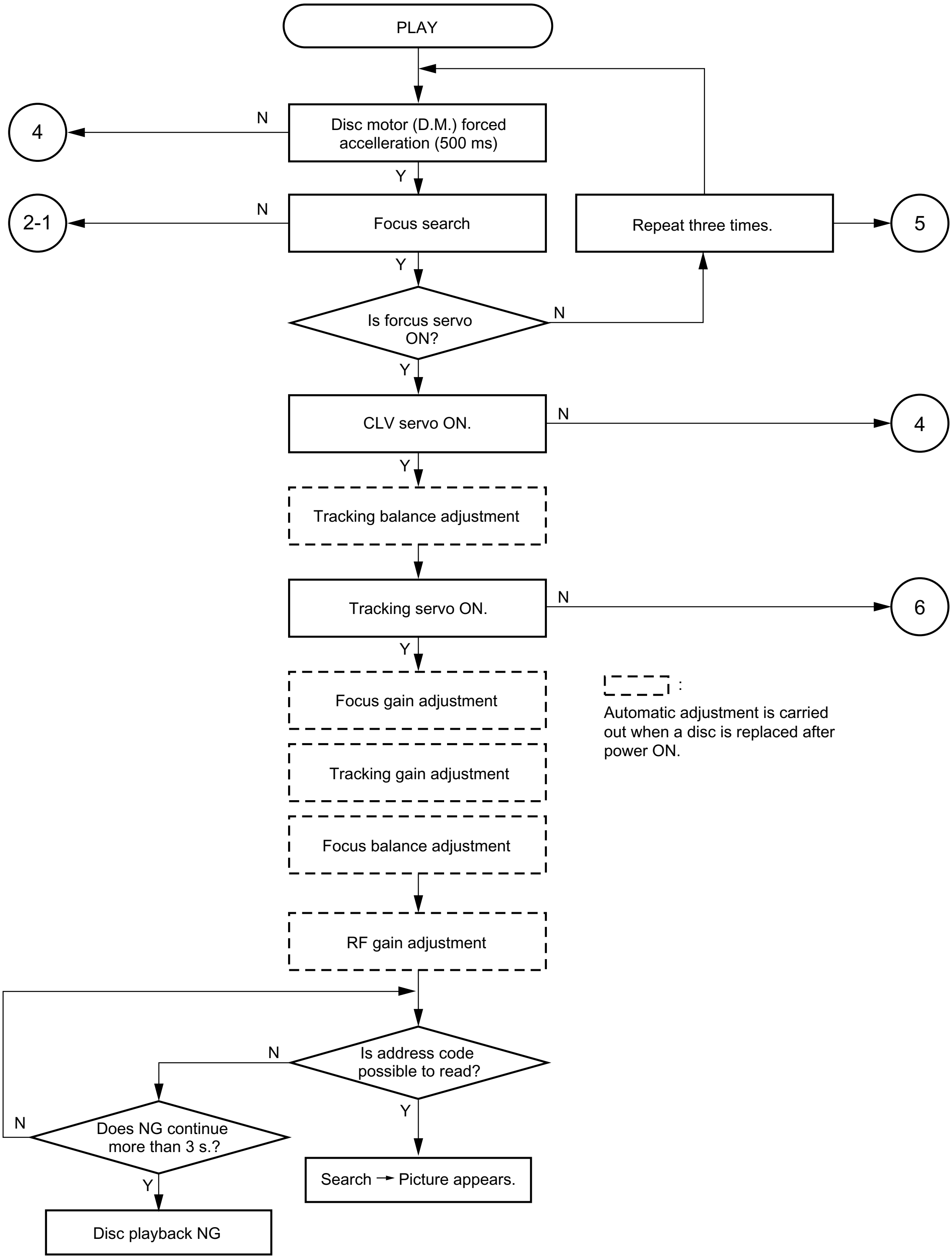

PLAY
Disc motor (D.M.) forced acclleration (500 ms)
N
4
Y
Focus search
N
2-1
Repeat three times.
5
Y
Is forcus servo ON?
N
Y
CLV servo ON.
N
4
Y
Tracking balance adjustment
Tracking servo ON.
N
6
Y
Focus gain adjustment
Tracking gain adjustment
Focus balance adjustment
RF gain adjustment
:
Automatic adjustment is carried out when a disc is replaced after power ON.
Is address code possible to read?
N
Y
Does NG continue more than 3 s.?
N
Y
Search → Picture appears.
Disc playback NG

Fig. 1-3-9

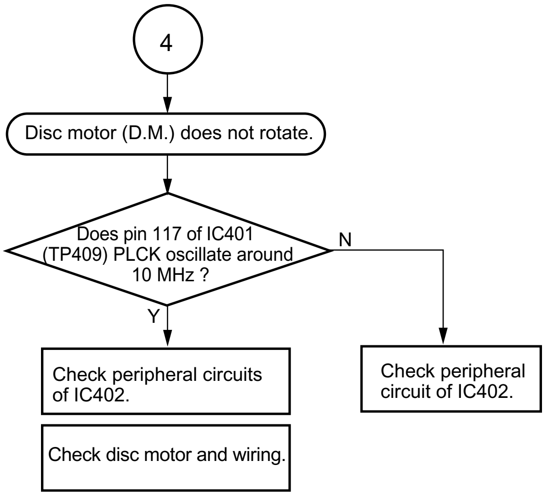

4
Disc motor (D.M.) does not rotate.
Does pin 117 of IC401 (TP409) PLCK oscillate around 10 MHz ?
N
Y
Check peripheral circuits of IC402.
Check disc motor and wiring.
Check peripheral circuit of IC402.

Fig. 1-3-10

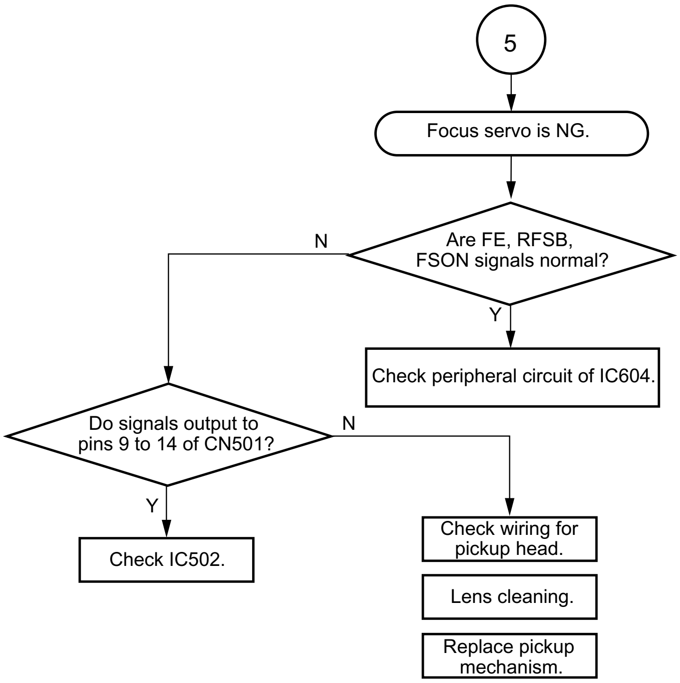

5
Focus servo is NG.
Are FE, RFSB, FSON signals normal?
N
Y
Check peripheral circuit of IC604.
Do signals output to pins 9 to 14 of CN501?
N
Y
Check IC502.
Check wiring for pickup head.
Lens cleaning.
Replace pickup mechanism.

Fig. 1-3-11

Focus servo ON signal waveform

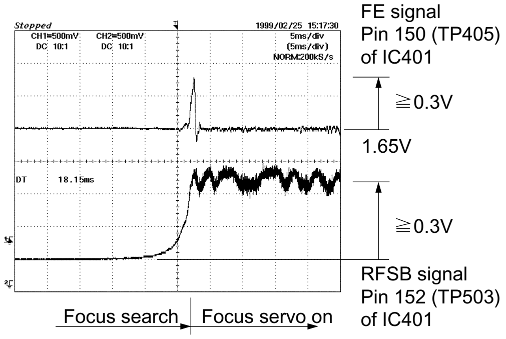


Fig. 1-3-12

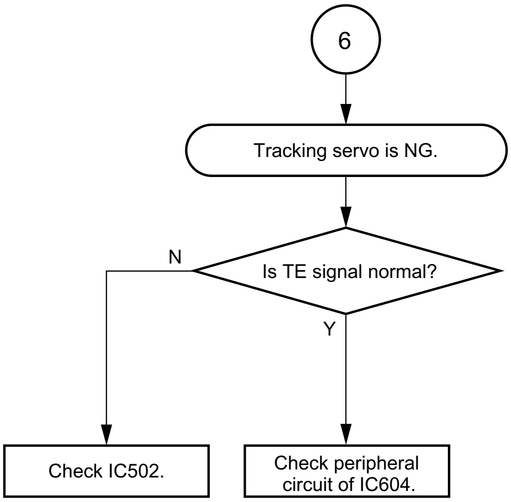
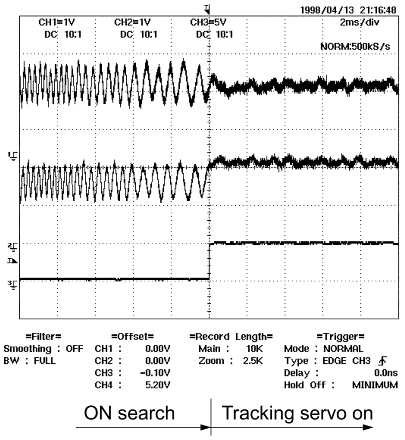

6
Tracking servo is NG.
Is TE signal normal?
N
Y
Check IC502.
Check peripheral circuit of IC604.

Fig. 1-3-13

Signal waveform at tracking servo ON (CD)



TE signal
Pin 151 (TP406) of IC401
1.65V

RFRP signal
Pin 153 (TP408) of IC401

Search ON (SRCH)
Pin 38 (TP411) of IC401

Fig. 1-3-14

Signal waveform at tracking servo ON (DVD)

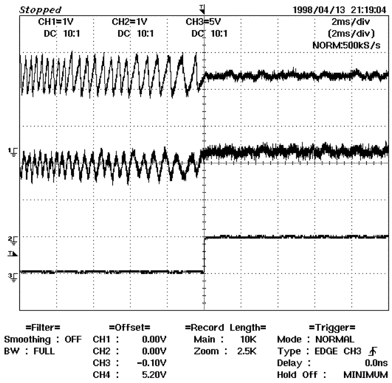


Fig. 1-3-15

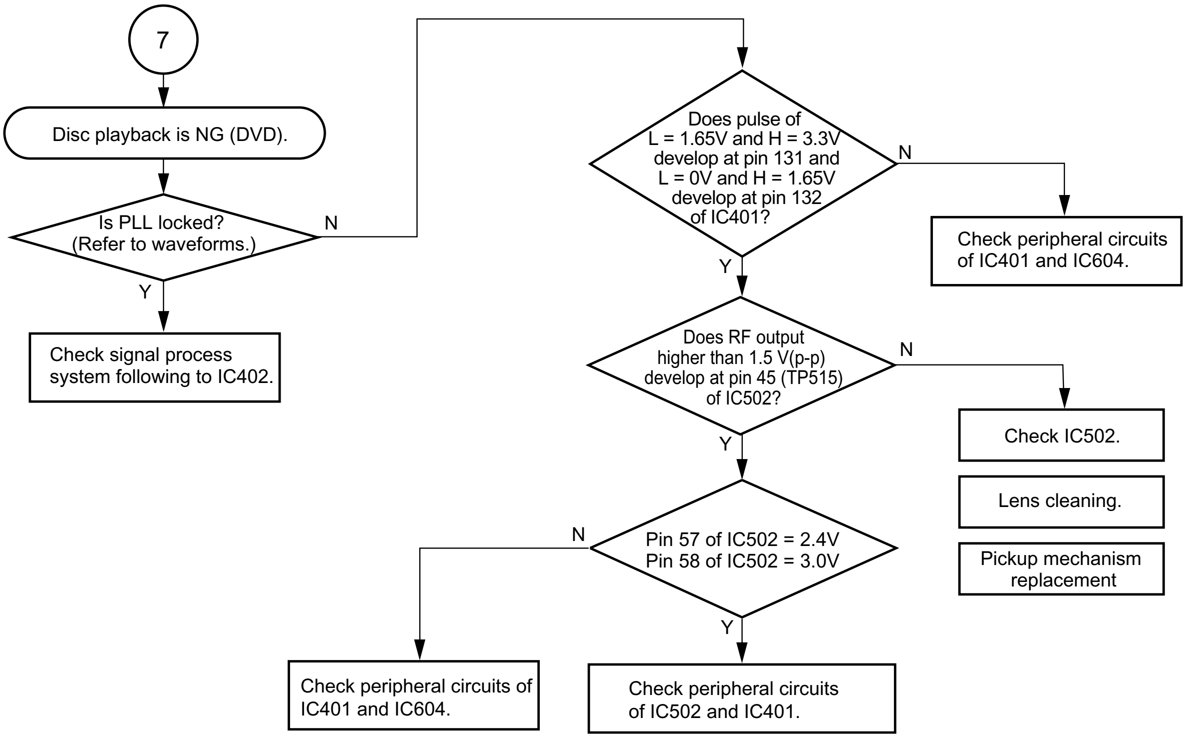
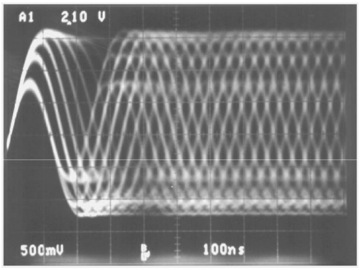

7
Disc playback is NG (DVD).
Is PLL locked?
(Refer to waveforms.)
N
Y
Check signal process system following to IC402.
Does pulse of L = 1.65V and H = 3.3V develop at pin 131 and L = 0V and H = 1.65V develop at pin 132 of IC401?
N
Check peripheral circuits of IC401 and IC604.
Y
Does RF output higher than 1.5 V(p-p) develop at pin 45 (TP515) of IC502?
N
Check IC502.
Lens cleaning.
Pickup mechanism replacement
Y
Pin 57 of IC502 = 2.4V
Pin 58 of IC502 = 3.0V
N
Check peripheral circuits of IC401 and IC604.
Y
Check peripheral circuits of IC502 and IC401.

Fig. 1-3-16

PLL works as a servo loop to generate a clock signal for reading RF signal binary data. With the PLL locked, the eye pattern is identified clearly when triggered with the read clock PLCK.

DVD RF signal

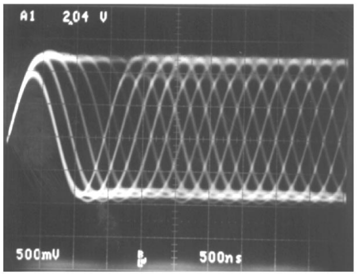


DVD RF signal
Pin 45 (TP502) of IC502

V : 500 mV/div
H : 50 ns/div

Fig. 1-3-17

CD RF signal

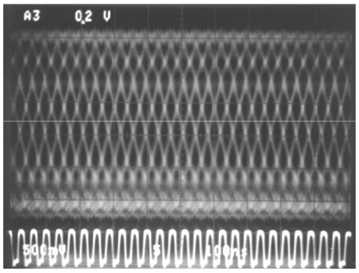


CD RF signal
Pin 45 (TP502) of IC502

V : 500 mV/div
H : 100 ns/div

Fig. 1-3-18

DVD playback waveform



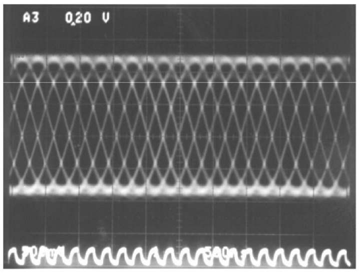
DVD RF signal
Pin 45 (TP502) of IC502

DVD PLCK
Pin 117 (TP409) of IC401

CH1 : TP515 DVDRF 500 mV/div
CH2 : TP511 DVDPLCK 5 V/div
50 ns/div

Fig. 1-3-19

CD playback waveform



CD RF signal
Pin 45 (TP502) of IC502

CD PLCK
Pin 117 (TP409) of IC401

CH1 : TP502 CDRF 500 mV/div
CH2 : TP409 CDPLCK 5 V/div
100 ns/div

Fig. 1-3-20

3-1-2. Location Diagram of Servo Test Point

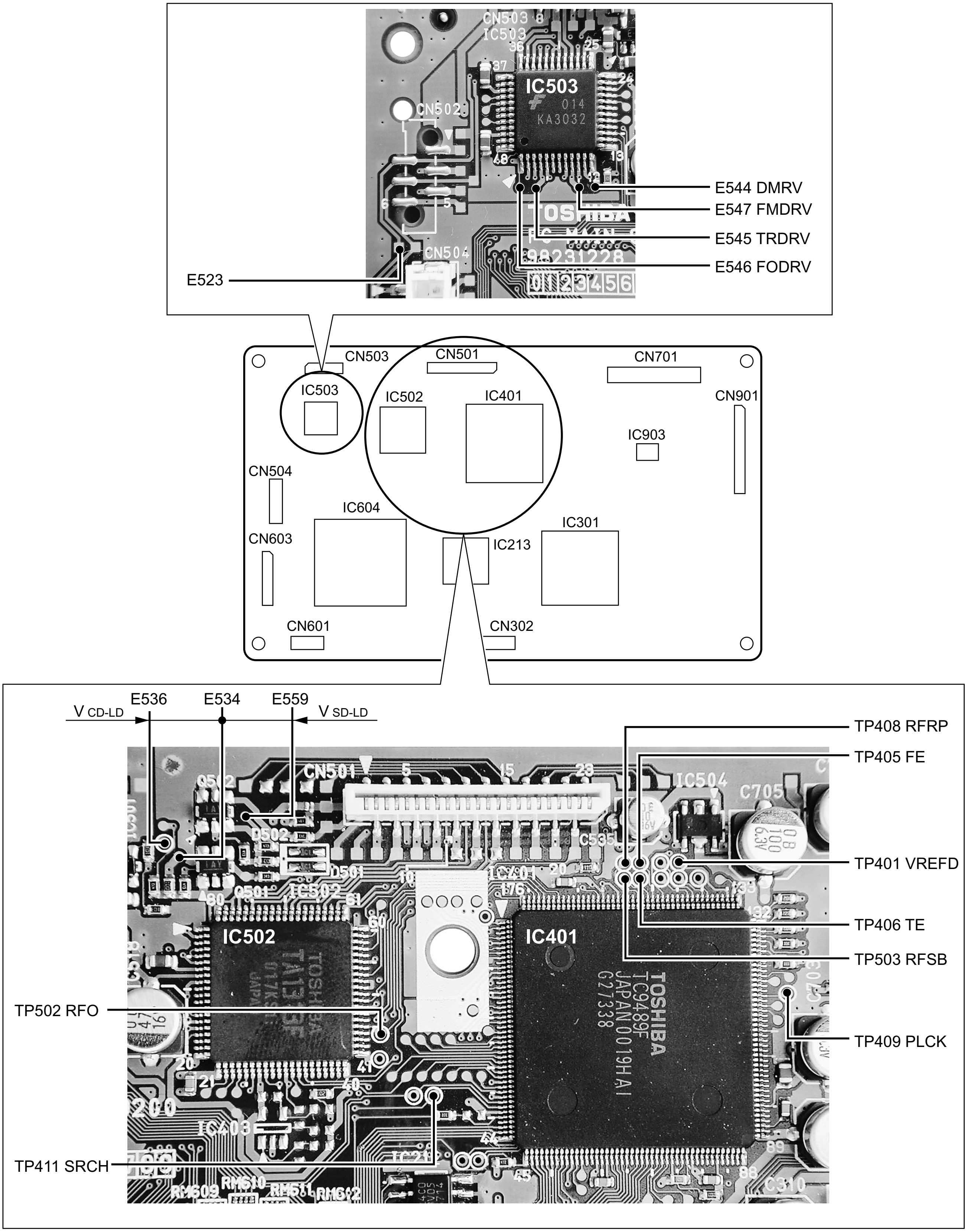

E544 DMRV
E547 FMDRV
E545 TRDRV
E546 FODRV
E523
CN503
CN501
CN701
IC503
IC502
IC401
CN901
IC903
CN504
IC604
IC301
CN603
IC213
CN601
CN302
E536
E534
E559
V CD-LD
V SD-LD
TP408 RFRP
TP405 FE
TP401 VREFD
TP406 TE
TP503 RFSB
TP409 PLCK
TP502 RFO
TP411 SRCH

Fig. 1-3-21

SECTION 2
PART REPLACEMENT AND ADJUSTMENT PROCEDURES

CAUTIONS BEFORE STARTING SERVICING

Electronic parts are susceptible to static electricity and may easily damaged, so do not forget to take a proper grounding treatment as required.

Many screws are used inside the unit. To prevent missing, dropping, etc. of the screws, always use a magnetized screwdriver in servicing. Several kinds of screws are used and some of them need special cautions. That is, take care of the tapping screws securing molded parts and fine pitch screws used to secure metal parts. If they are used improperly, the screw holes will be easily damaged and the parts can not be fixed.

1. REPLACEMENT OF MECHANICAL PARTS

1-1. Cabinet Replacement

1-1-1. Top Cover

1. Remove eight screws (1) and three screws (2), and then remove the top cover (3).

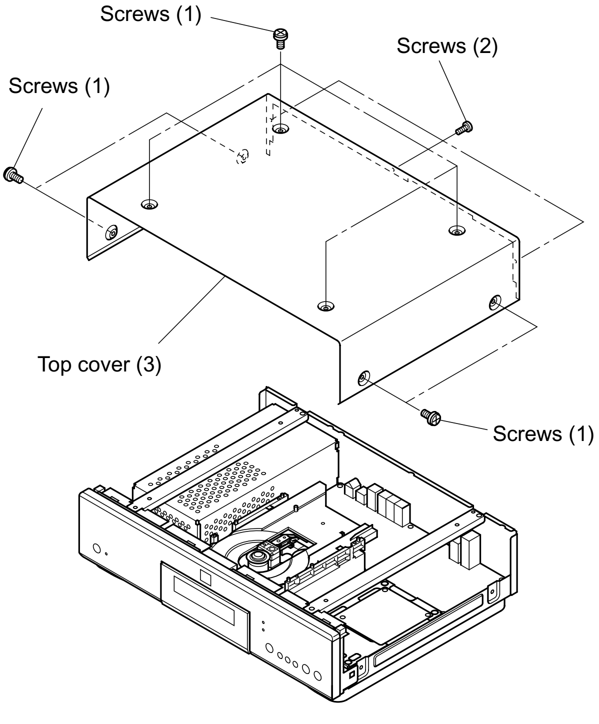

Screws (1)
Screws (2)
Screws (1)
Top cover (3)
Screws (1)

Fig. 2-1-1

1-1-2. Bottom Plate

1. Remove four screws (2) fixing each foot (1).
2. Remove the feet (1) attached by both-side adhesive tape with a screwdriver, etc.

Note:

- At this time, use a soft cloth on the tip of the screwdriver not to damage the bottom plate.

3. Remove seven screws (3).
4. Remove the bottom plates (4) and (5).
5. Remove four screws (6) and remove the bottom plate (7).

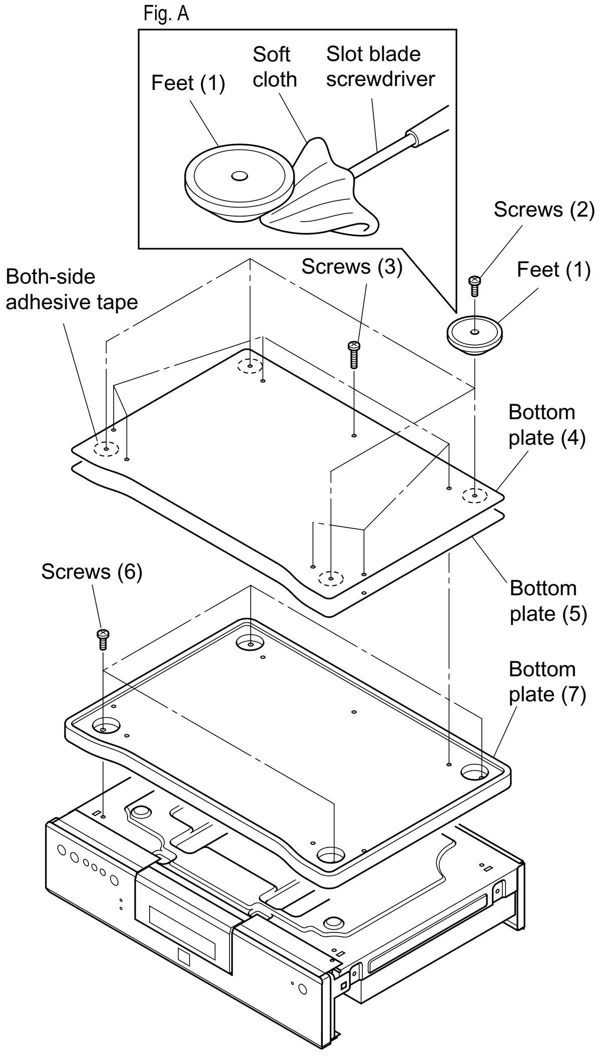


Fig. A
Feet (1)
Soft cloth
Slot blade screwdriver
Screws (2)
Feet (1)
Both-side adhesive tape
Screws (3)
Bottom plate (4)
Screws (6)
Bottom plate (5)
Bottom plate (7)

Fig. 2-1-2

1-1-3. Front Panel

1. Remove the bottom plate. (Refer to item 1-1-2.)
2. Remove four screws (1) and two stays (2).
3. Remove four screws (3).
4. Disconnect one flexible cable (4).
5. Release two claws and remove the front panel (5).

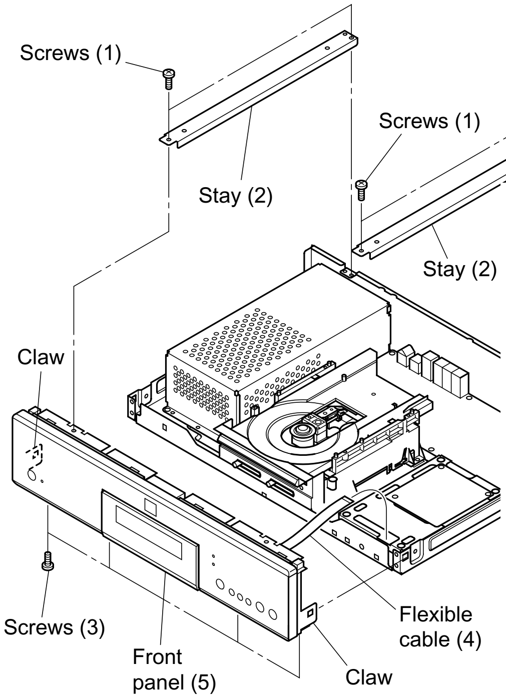

Screws (1)
Screws (1)
Stay (2)
Stay (2)
Claw
Screws (3)
Front panel (5)
Flexible cable (4)
Claw

Fig. 2-1-3

Note:

- When mounting, bend the 13 pin flexible cable (4) connecting front and main PC boards to keep away from the top cover.

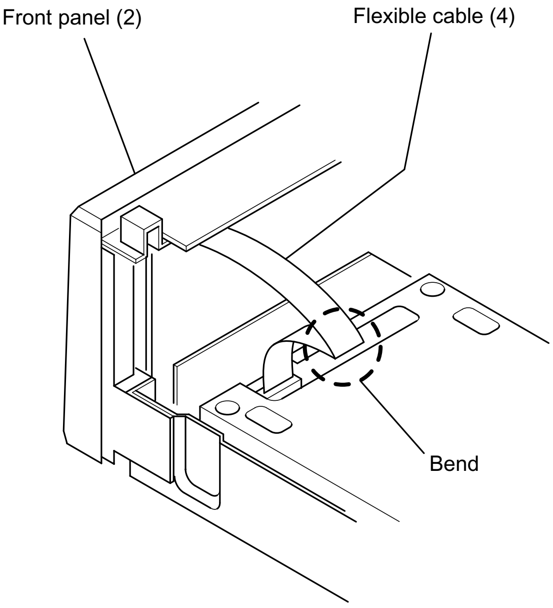

Front panel (2)
Flexible cable (4)
Bend

Fig. 2-1-4

1-1-4. Rear Panel

<Removal>

1. Remove the stays. (Refer to item 1-1-3.)
2. Remove fifteen screws (1) and remove the rear panel (2).

Note:

- The metal part (3) is released.

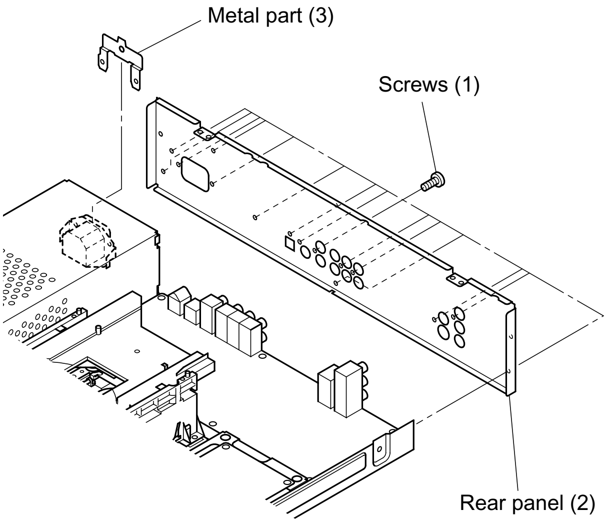

Metal part (3)
Screws (1)
Rear panel (2)

Fig. 2-1-5

<Mounting>

Note:

- The metal part (3) is released when removing the rear panel (2). So, refer to the procedures below when mounting.

1. Remove two screws (4), and then remove the power supply shield cover (5).
2. Match the screw holes of the metal part (3) and AC inlet (6), and then mount the rear panel (2) with two screws (1).
3. Mount the power supply shield cover (5) with two screws (4).
4. Tighten the screws (1) left.

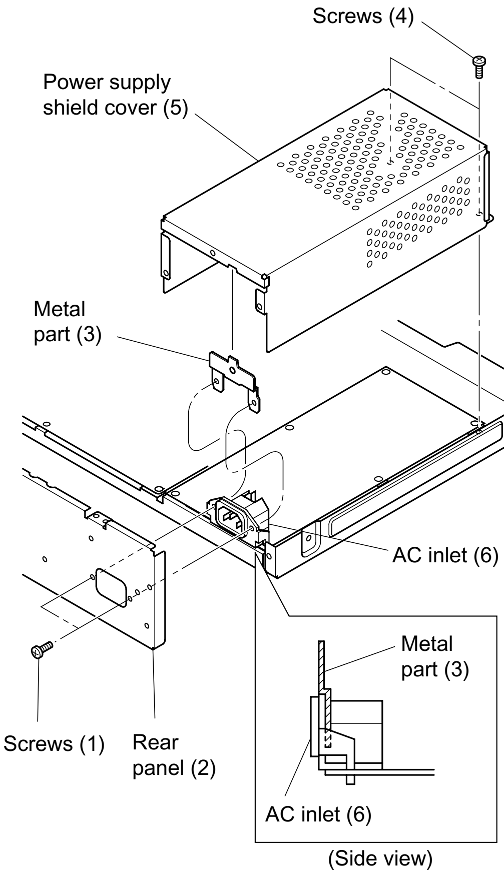

Screws (4)
Power supply shield cover (5)
Metal part (3)
AC inlet (6)
Metal part (3)
Screws (1)
Rear panel (2)
AC inlet (6)
(Side view)

Fig. 2-1-6

1-2. PC Board Replacement

Note:

- Perform the wiring between power supply, main and output PC boards as followings. Pay attention for the wiring when mounting.

1. Bind the wires from the power supply PC board with the wire clamp (1) and keep then up away from the output PC board (approx. 20mm).
2. Bind the 13 wires from the main PC board with the wire clamp (3) and keep then up away from the output PC board (approx. 20mm).
3. Draw the wire in the arrow A direction not to leave slack on the power supply PC board side. Bind the wire with the binding bands (4) at the positions shown by the arrows B and C (2 locations) not to be twisted.
4. Pass the 8 wires (5) between the capacitors CS09 and CS10.
5. Press down the wires twice or three times approx. at the center position between the binding bands B and C to fit the wires along the surface of output PC board. This is to prevent the wires from interrupting the tray motion.

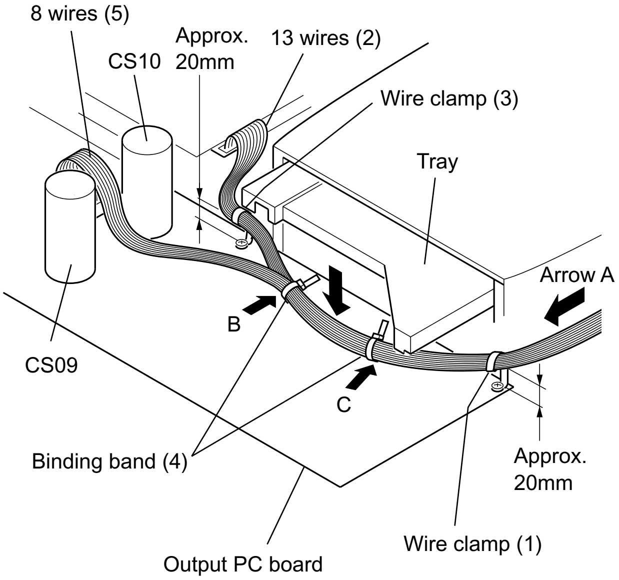

8 wires (5)
CS10
Approx. 20mm
13 wires (2)
Wire clamp (3)
Tray
Arrow A
B
CS09
C
Binding band (4)
Approx. 20mm
Wire clamp (1)
Output PC board

Fig. 2-1-7

1-2-1. Sub Video PC Board

1. Disconnect one flexible cable (1).
2. Remove three screws (2) and remove the sub video PC board (3).

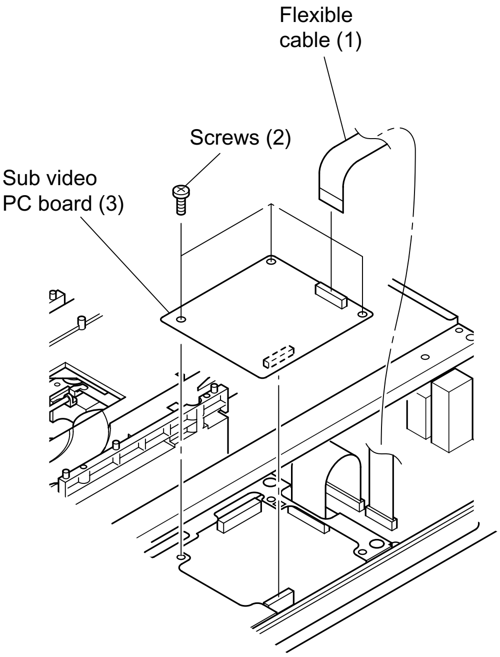

Flexible cable (1)
Screws (2)
Sub video PC board (3)

Fig. 2-1-8

1-2-2. Main PC Board

Note:

- Before removing the main PC board (4), be sure to short-circuit the laser diode output land.

  After replacing, open the land after inserting the connectors and flexible cables.

1. Remove the sub video PC board (Refer to item 1-2-1.)
2. Remove one connector (1).
3. Peel off the tape (2) and pull out the wire bound with a binding band from the clearance between the chassis and the shield cover (4).
4. Disconnect one connector (5) and three flexible cable (6).
5. Remove four screws (7) and remove the shield cover (4).
6. Remove the main PC board (8).

Note:

- When mounting, push the wire bound with a binding band into the clearance between the chassis and the shield cover (4) and fix the wire with the tape (2).

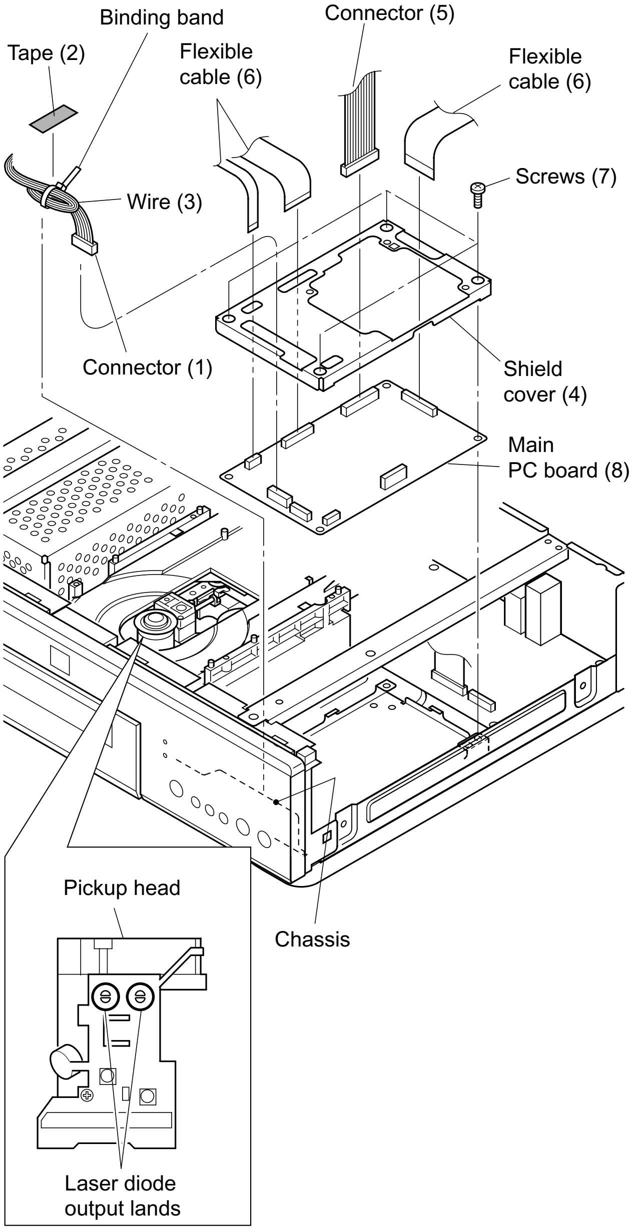

Binding band
Connector (5)
Tape (2)
Flexible cable (6)
Flexible cable (6)
Screws (7)
Wire (3)
Connector (1)
Shield cover (4)
Main PC board (8)
Chassis
Pickup head
Laser diode output lands

Fig. 2-1-9

1-2-3. Output PC Board

1. Remove the rear panel. (Refer to item 1-1-4.)
2. Remove one connector (1) and remove two flexible cables (2).
3. Remove one screw (3) and remove the lead wire with a lug (4).
4. Remove six screws (5) and remove the output PC board (6).

Note:

- When mounting the output PC board, bind the wire (6) with the wire clamp (5).

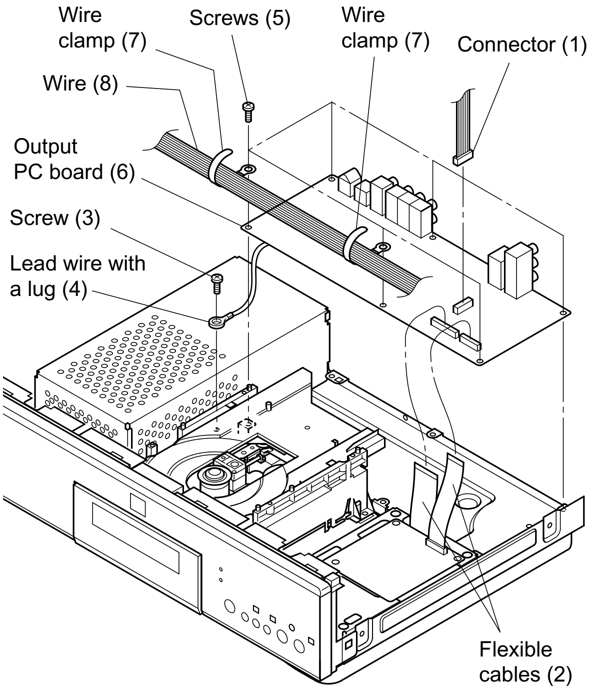

Wire clamp (7)
Screws (5)
Wire clamp (7)
Connector (1)
Wire (8)
Output PC board (6)
Screw (3)
Lead wire with a lug (4)
Flexible cables (2)

Fig. 2-1-10

1-2-4. Power Supply PC Board

1. Remove two screws (1) and remove the stay (2).
2. Remove three screws (3) and two screws (4), and then remove the power shield cover (5).
3. Remove the metal part (6).
4. Remove three connectors (7).
6. Remove two screws (8) and five screws (9), and then remove the power supply PC Board (10).

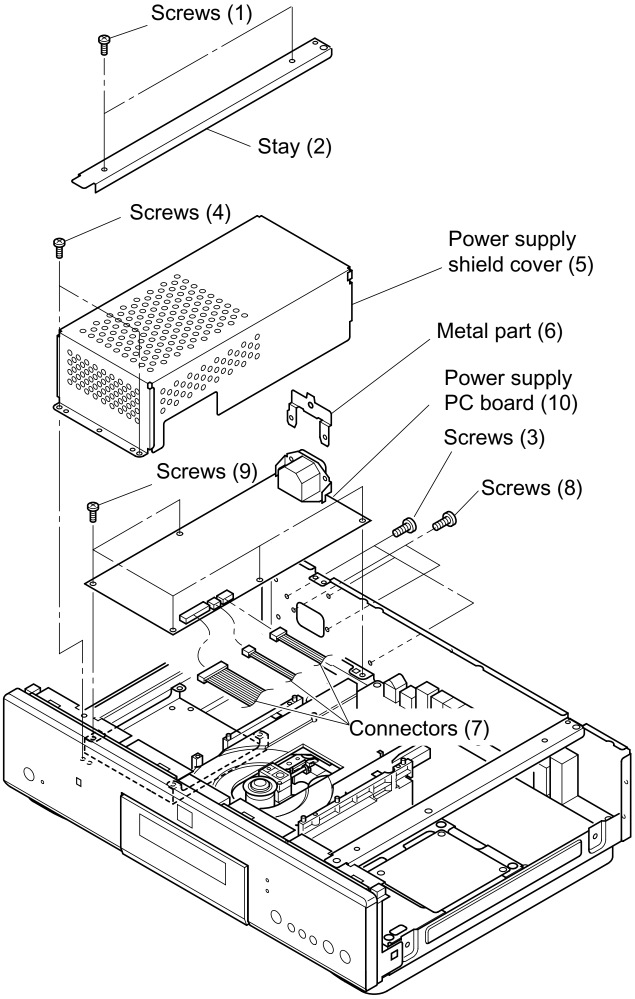

Screws (1)
Stay (2)
Screws (4)
Power supply shield cover (5)
Metal part (6)
Power supply PC board (10)
Screws (3)
Screws (9)
Screws (8)
Connectors (7)

Fig. 2-1-11

1-2-5. Front and Power SW PC Boards

1. Remove the front panel. (Refer to item 1-1-3.)
2. Disconnect two flexible cables (1).
3. Remove three screws (2) and release six claws (A), and then remove the front PC board (3).
4. Remove one screw (4) and release four claws (B), and then remove the power switch PC board (5).

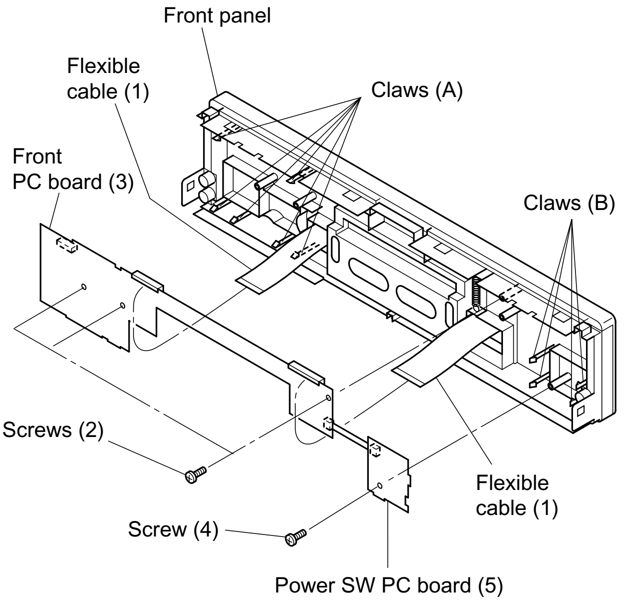

Front panel
Flexible cable (1)
Claws (A)
Front PC board (3)
Claws (B)
Screws (2)
Flexible cable (1)
Screw (4)
Power SW PC board (5)

Fig. 2-1-12

1-2-6. Display PC Board

1. Remove the front panel. (Refer to item 1-1-3.)
2. Remove the front PC board and the power switch PC board. (Refer to item 1-2-5.)
3. Remove two screws (1).
4. Remove the holder (2) and the LED cover (3).
5. Remove two springs (4).
6. Release four claws (A) and remove the aluminum panel (11).
7. Slide the plate (5) upward.
8. Remove the display assembly (6).
9. Remove four screws (7) and remove the display cover (8).
10. Release three claws (B) and remove the display PC board (9).
11. Disconnect two flexible cables (10).
12. Perform the reverse steps of removal described above for mounting.

Note:

- Mount the holder (2) and LED cover (3) after mounting the plate (5) and the aluminum panel (11). (Refer to Fig. A.)

  (The projection of the LED cover (3) may be broken.)

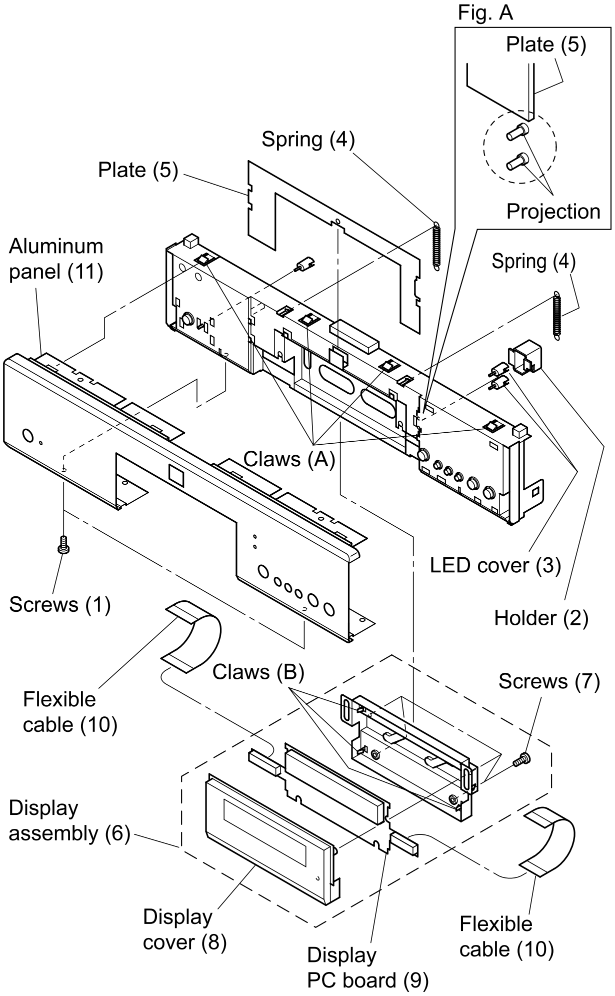


Fig. A
Plate (5)
Projection
Spring (4)
Plate (5)
Aluminum panel (11)
Spring (4)
Claws (A)
LED cover (3)
Screws (1)
Holder (2)
Claws (B)
Screws (7)
Flexible cable (10)
Display assembly (6)
Display cover (8)
Display PC board (9)
Flexible cable (10)

Fig. 2-1-13

1-3. Mechanism Parts Replacement

1-3-1. Mechanism Chassis Assembly

Note:

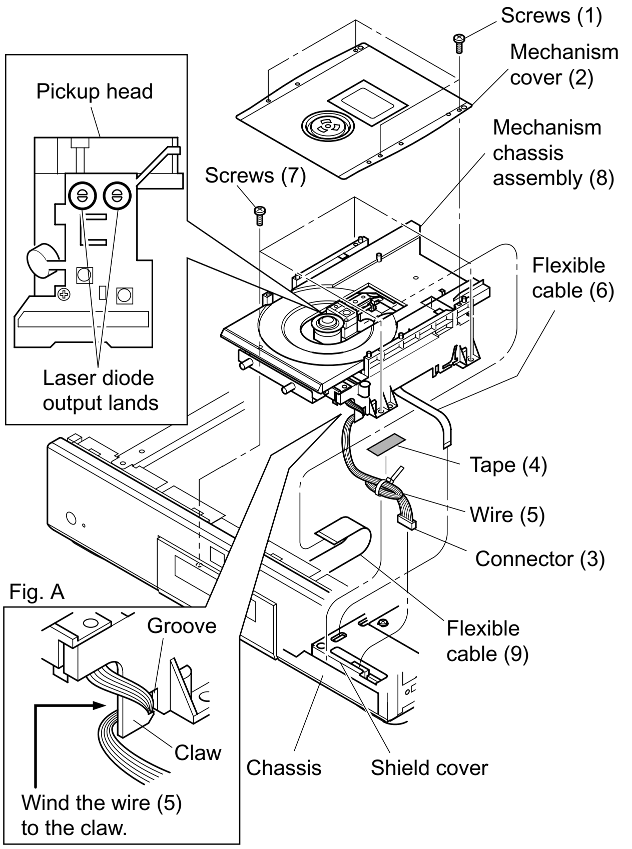
- Before removing the connectors and flexible cables, be sure to short-circuit the laser diode output land. After replacing the mechanism chassis assembly, open the land after inserting the connectors and flexible cables.

1. Remove four screws (1) and remove the mechanism cover (2).
2. Remove one connector (3).
3. Peel off the tape (4), and pull out the wire part (5) bound with the binding band from the clearance between the chassis and the shield cover.
4. Remove one flexible cable (6).
5. Remove four screws (7) and remove the mechanism chassis assembly (8).
6. Remove one flexible cable (9).

Note:

- When mounting, pass the wire (5) through the groove and wind it to the claw as shown in Fig. A.

  Push the wire bound with a binding band into the clearance between the chassis and the shield cover and fix the wire with the tape (4).

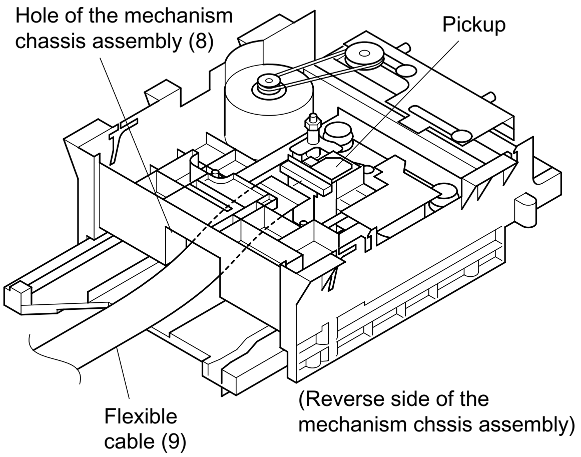


Screws (1)
Mechanism cover (2)
Pickup head
Mechanism chassis assembly (8)
Screws (7)
Flexible cable (6)
Laser diode output lands
Tape (4)
Wire (5)
Connector (3)
Fig. A
Groove
Flexible cable (9)
Claw
Chassis
Shield cover
Wind the wire (5) to the claw.

Fig. 2-1-14

Note:

- When connecting the flexible cable (9), pass it through the hole of the mechanism chassis assembly (8).

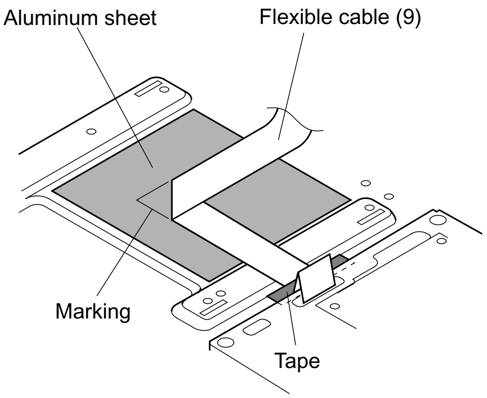


Hole of the mechanism chassis assembly (8)
Pickup
Flexible cable (9)
(Reverse side of the mechanism chssis assembly)

Fig. 2-1-15

Note:

- Check the aluminum sheet is attached.
- Locate the flexible cable (9) on the aluminum sheet, and fix it with one tape.



Aluminum sheet
Flexible cable (9)
Marking
Tape

Fig. 2-1-16

1-3-2. Tray Assembly

<Removal>

1. Slide the display part drive slider (1) in the direction A and pull out the tray assembly (2) to this side.
2. Remove one screw (3) and remove the tray rail guide (right) (4).
3. Remove two screws (5) and remove the tray rail guide (left) (6).
4. Remove the tray assembly (2) from the mechanism chassis assembly (7).

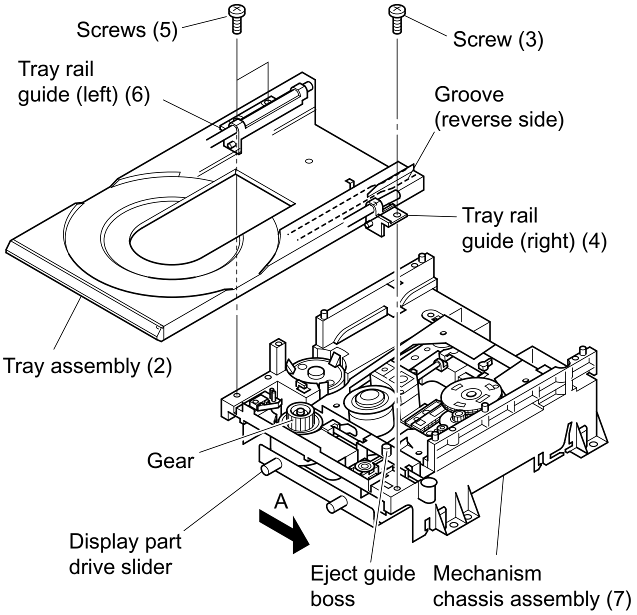

Screws (5)
Screw (3)
Tray rail guide (left) (6)
Groove (reverse side)
Tray rail guide (right) (4)
Tray assembly (2)
Gear
A
Display part drive slider
Eject guide boss
Mechanism chassis assembly (7)

Fig. 2-1-17

<Mounting>

1. Slide the display part drive slider (1) in the direction A.
2. Match the eject guide boss on the mechanism chassis (7) with the tray groove and put the tray assembly (2) on the mechanism chassis (7). (Refer to Fig. B.)
3. Mount the tray rail guides (4) and (5) on the left and right of the tray assembly (2) to the mounting positions on the mechanism chassis assembly and fix them by tightening with one screw (3) and two screws (6). (Refer to Fig. B.)

Note:

- When the tray rail guides are correctly set to the mounting positions of the mechanism chassis assembly, the gear of the tray and that of the mechanism chassis assembly are engaged. (Refer to Fig. C.)

4. Slide the tray assembly (2) backward.

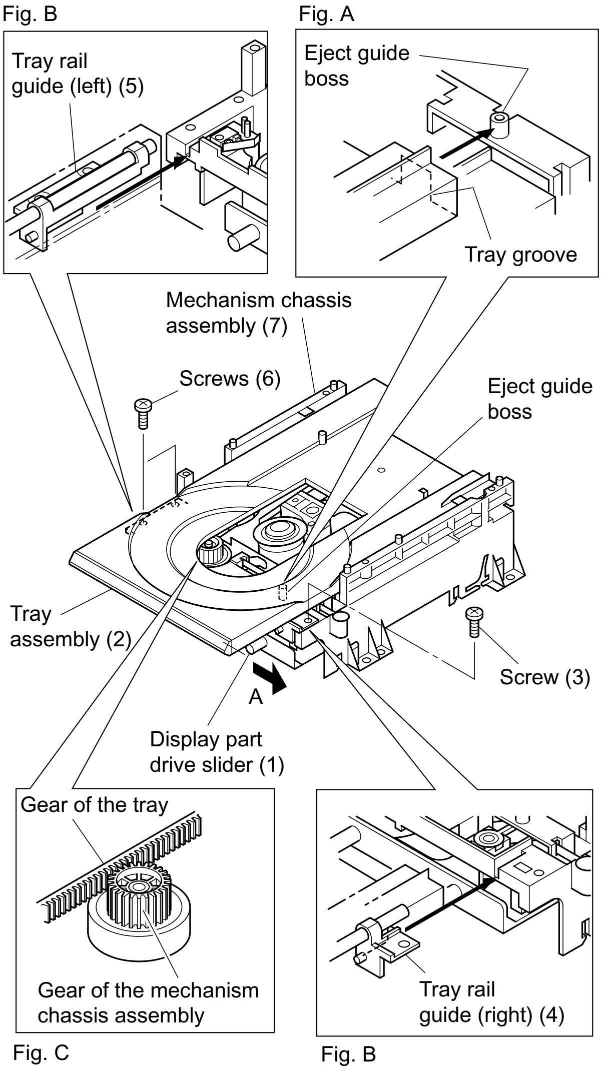


Fig. B
Tray rail guide (left) (5)
Fig. A
Eject guide boss
Tray groove
Mechanism chassis assembly (7)
Screws (6)
Eject guide boss
Tray assembly (2)
A
Screw (3)
Display part drive slider (1)
Gear of the tray
Gear of the mechanism chassis assembly
Fig. C
Tray rail guide (right) (4)
Fig. B

Fig. 2-1-18

1-3-3. Loading Belt, Loading Motor, Loading Gear

1. Eject the tray assembly. (Refer to item 1-3-2.)
2. Remove the loading belt (1).
3. Remove the poly slider washer (2) and remove the loading gear (3).
4. Desolder the terminal of the loading motor (4).
5. Release three claws (A) and remove the loading motor (4).

Note:

- When mounting the loading belt (1), take care not to twist it nor attach grease, etc.
- When replacing the loading motor (4), take care not to set the wrong polarity of the terminal.

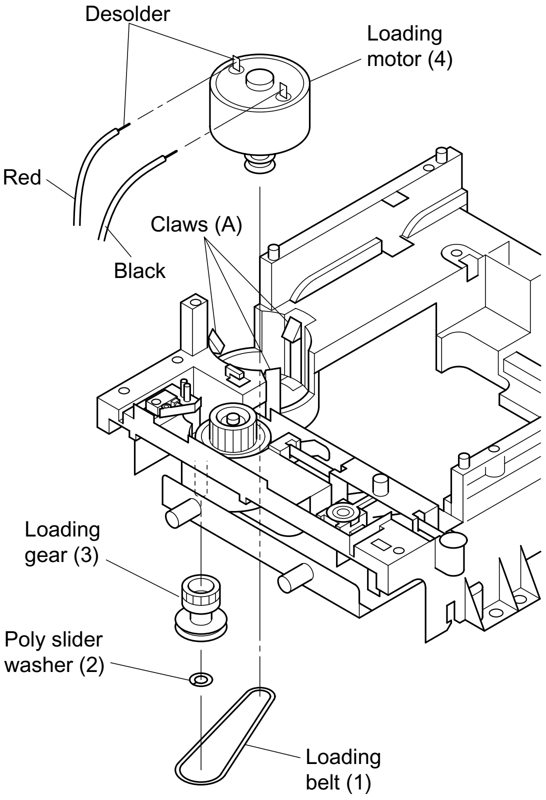

Desolder
Loading motor (4)
Red
Claws (A)
Black
Loading gear (3)
Poly slider washer (2)
Loading belt (1)

Fig. 2-1-19

1-3-4. Eject detection switch

1. Remove the tray assembly. (Refer to item 1-3-2.)
2. Remove one screw (1) and remove the eject detection switch (2).
3. Desolder the terminal part.

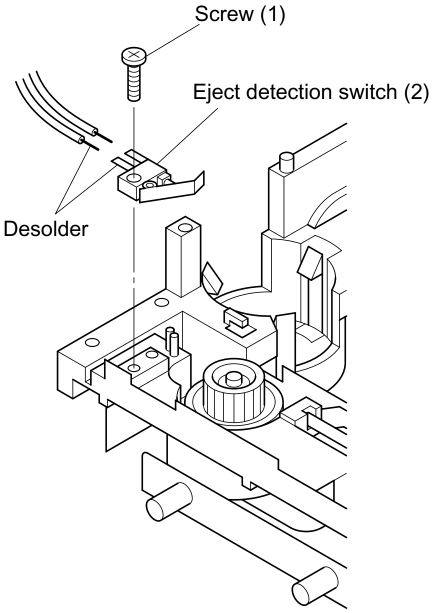

Screw (1)
Eject detection switch (2)
Desolder

Fig. 2-1-20

1-3-5. Mechanism detection switch

1. Remove the tray assembly. (Refer to item 1-3-2.)
2. Remove one screw (1) and remove the mechanism detection switch (2).
3. Desolder the terminal part.

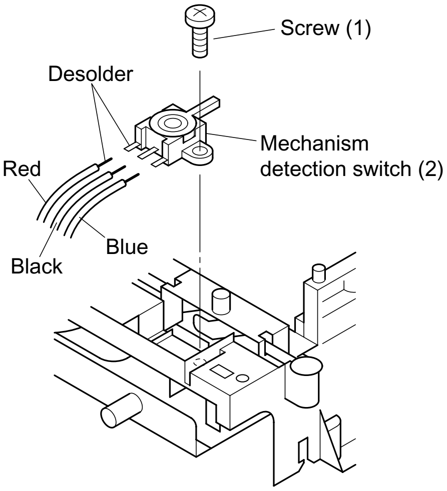

Screw (1)
Desolder
Mechanism detection switch (2)
Red
Blue
Black

Fig. 2-1-21

1-3-6. Sub Chassis

1. Remove the tray assembly. (Refer to item 1-3-2.)
2. Disconnect one flexible cable (1).
3. Remove one screw (2) and remove the sub chassis (3).

Note:

- When mounting , insert three bosses of the sub chassis (3) (with the pickup mechanism) into the guides of the mechanism chassis assembly.

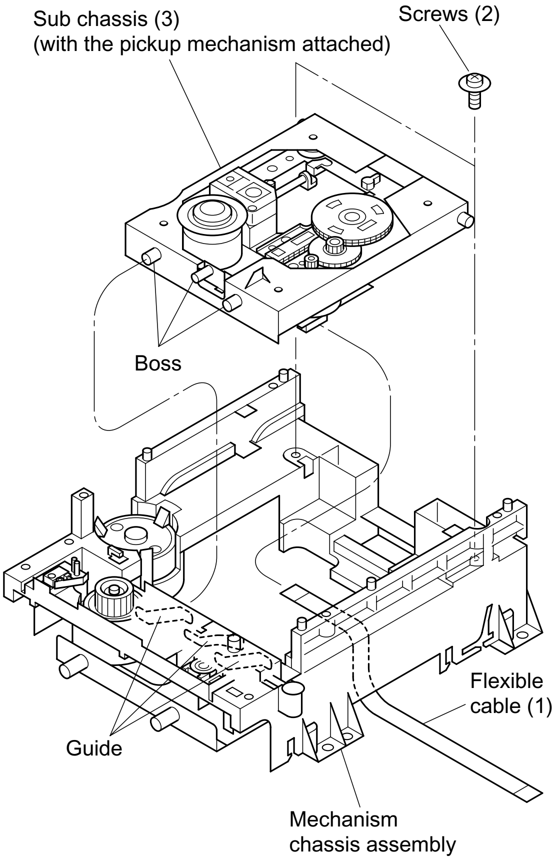

Sub chassis (3)
(with the pickup mechanism attached)
Screws (2)
Boss
Flexible
cable (1)
Guide
Mechanism
chassis assembly

Fig. 2-1-22

1-3-7. Pickup Mechanism Assembly

<Removal>

1. Remove four screws (1) and remove the pickup mechanism assembly (2).

<Mounting>

1. Replace the pickup mechanism assembly (2) with a new one.

   Remove dampers from the pickup mechanism assembly replaced and mount the dampers on the new pickup mechanism assembly.

   Remove the screw (3) and bracket (4), and fix the bracket (4) on the new pickup mechanism assembly with the screw (3).
2. Perform the reverse steps of the removal described above for mounting.

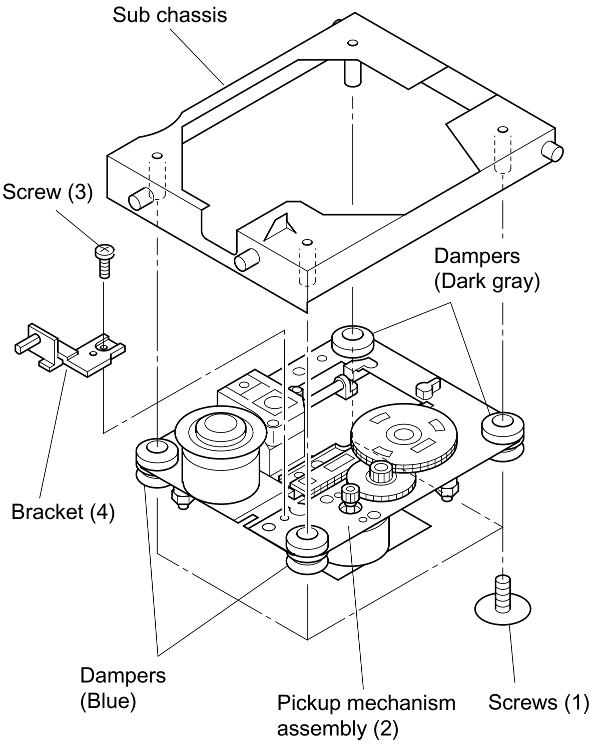

Sub chassis
Screw (3)
Dampers
(Dark gray)
Bracket (4)
Dampers
(Blue)
Pickup mechanism
assembly (2)
Screws (1)

Fig. 2-1-23

Note:

- Do not misuse the dampers for the front side and the rear, since their color differs.
- When fixing the pickup mechanism assembly (2) with the screws (1), push the pickup mechanism assembly (2) downward not to catch the damper and tighten the screws (1) with the damper bent.

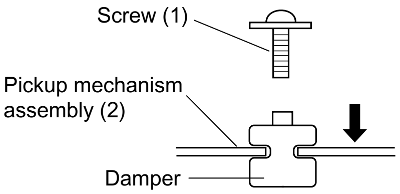

Screw (1)
Pickup mechanism
assembly (2)
Damper

Fig. 2-1-24

1-3-8. Gear B Assembly, Gear A and Rack Gear Assembly

<Removal>

1. Remove one screw (1) and remove the gear B assembly (2).
2. Remove the gear A (3).
3. Remove one screw (4) and remove the rack gear assembly (5).

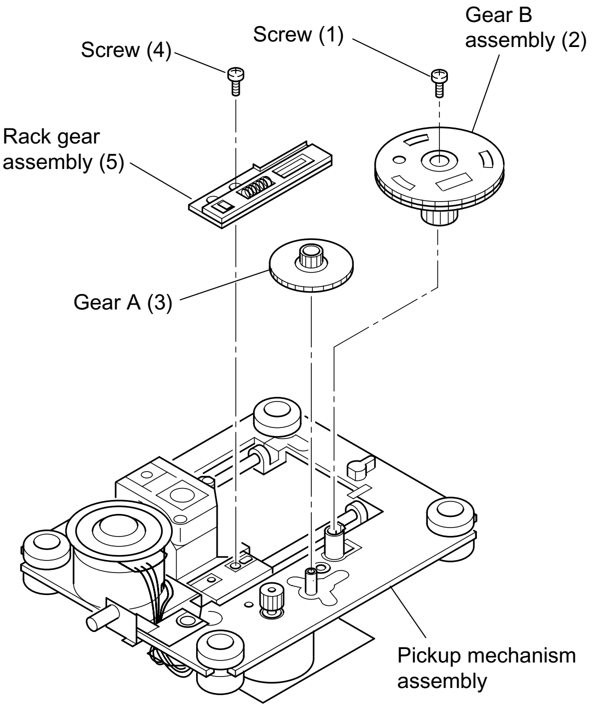

Screw (4)
Screw (1)
Gear B assembly (2)
Rack gear assembly (5)
Gear A (3)
Pickup mechanism assembly

Fig. 2-1-25

<Mounting>

1. When mounting, perform the reverse order of the removal.
2. Mount the gear B assembly (1) by pushing the pickup head (5) to the disc motor side (arrow A direction) and shifting the upper gear of the rack gear assembly (4) in the arrow B direction. (Refer to Fig. 2-1-23.)
3. Fit the positioning holes on the upper gear and lower gear of the gear B assembly (1) and mount on the pickup mechanism assembly with the phase matched.

   At this time, note that the phase of the gear B assembly (1) and the gear A (2) is as shown in Fig. 2-1-24.

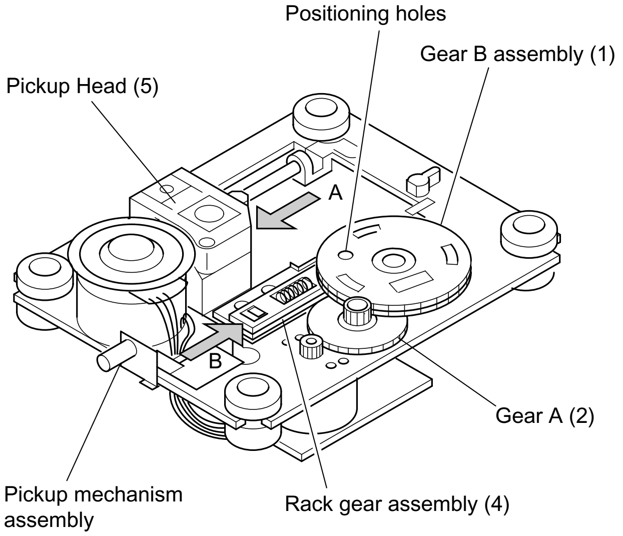

Positioning holes
Gear B assembly (1)
Pickup Head (5)
A
B
Gear A (2)
Pickup mechanism assembly
Rack gear assembly (4)

Fig. 2-1-26

Note:

- Mount the gear B assembly (1) and the gear A (2) with their gear teeth placed more than one tooth inside the shaded portion.

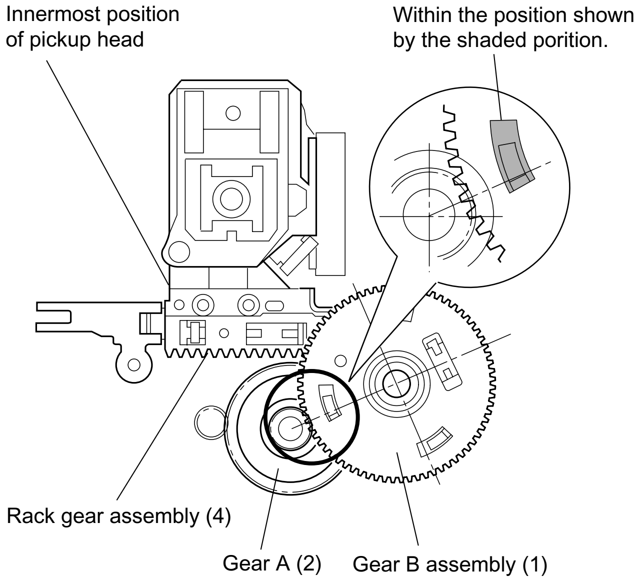

Innermost position of pickup head
Within the position shown by the shaded porition.
Rack gear assembly (4)
Gear A (2)
Gear B assembly (1)

Fig. 2-1-27

1-3-9. Feed Motor

<Removal>

1. Remove the gear B assembly (2) and the gear A (3). (Refer to item 1-3-8.)
2. Remove two screws (1) and remove the feed motor (2) (with the feed motor PC board (3) attached). (Refer to Fig. 2-1-25.)
3. Desolder the terminals of the feed motor (2) and remove the feed motor PC board (3).

<Mounting>

1. Tighten the feed motor (2) on the pickup mechanism assembly with the screws.
2. Insert the feed motor PC board (3) with the positioning pin on the chassis matched and solder the terminals.
3. Perform the reverse steps of the removal.

Note:

- When replacing the motor, take care not to set the wrong polarity of the terminal. (Note for the direction of the label.)

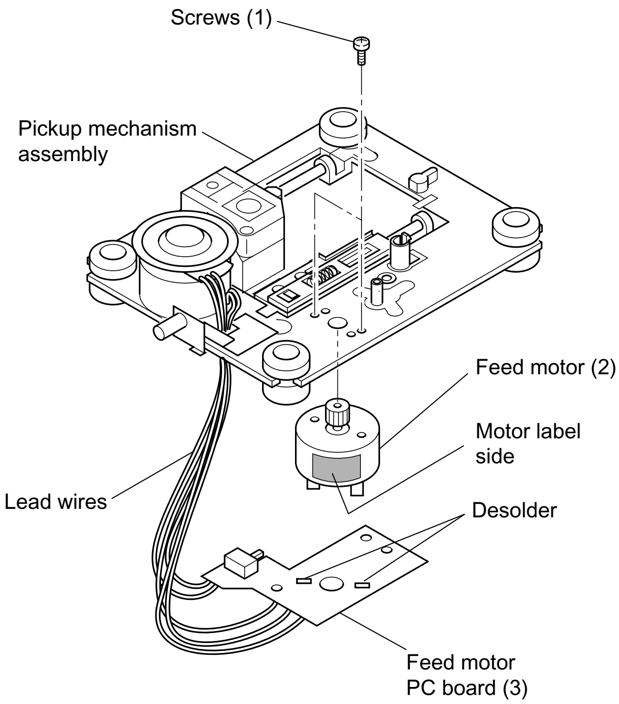

Screws (1)
Pickup mechanism assembly
Feed motor (2)
Motor label side
Lead wires
Desolder
Feed motor PC board (3)

Fig. 2-1-28

SECTION 3
SERVICING DIAGRAMS

1. STANDING PC BOARDS FOR SERVICING

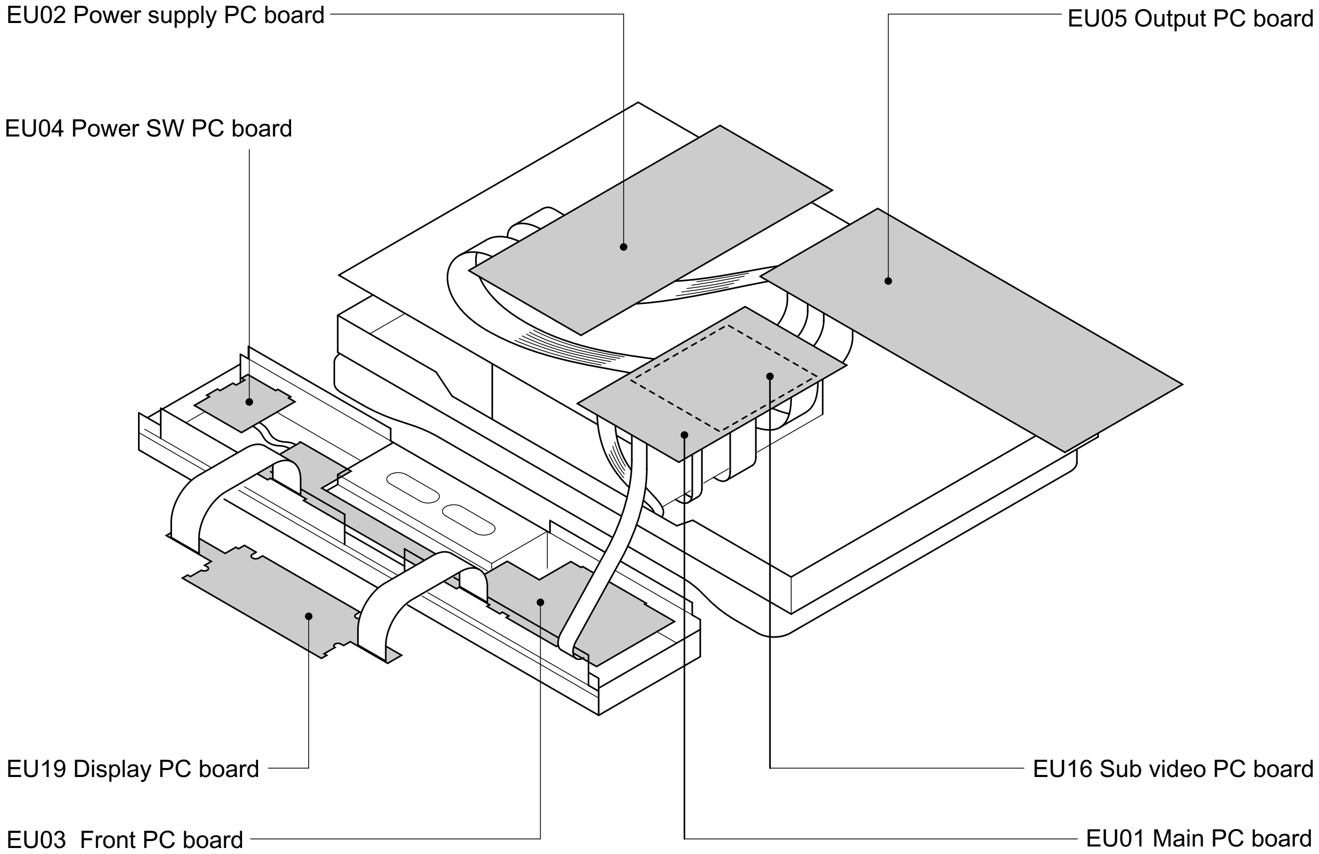

EU02 Power supply PC board
EU05 Output PC board
EU04 Power SW PC board
EU19 Display PC board
EU16 Sub video PC board
EU03 Front PC board
EU01 Main PC board

Fig. 3-1-1

2. CIRCUIT SYMBOLS AND SUPPLEMENTARY EXPLANATION

2-1. Precautions for Part Replacement

- In the schematic diagram, parts marked ⚠ (ex. ⚠ F801) are critical part to meet the safety regulations, so always use the parts bearing specified part codes (SN) when replacing them.
- Using the parts other than those specified shall violate the regulations, and may cause troubles such as operation failures, fire etc.

2-2. Solid Resistor Indication

Unit	None ....Ω K ....kΩ M ....MΩ
Tolerance	None ....±5% B ....±0.1% C ....±0.25% D ....±0.5% F ....±1% G ....±2% K ....±10% M ....±20%
Rated Wattage	(1) Chip Parts None ....1/16W (2) Other Parts None ....1/6W Other than above, described in the Circuit Diagram.
Type	None ....Carbon film S ....Solid R ....Oxide metal film W ....Metal film W ....Cement FR ....Fusible

Eg. 1

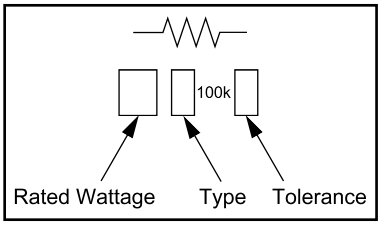
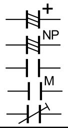

100k
Rated Wattage
Type
Tolerance

FIg. 3-2-1

2-3. Capacitance Indication

Symbol		...........Electrolytic, Special electrolytic ....Non polarity electrolytic ....Ceramic, plastic ....Film ....Trimmer
Unit		None ....F μ ....μF p ....pF
Rated voltage		None ....50V For other than 50V and electrolytic capacitors, described in the Circuit Diagram.
Tolerance		(1) Ceramic, plastic, and film capacitors of which capacitance are more than 10 pF. None ....±5% or more B ....±0.1% C ....±0.25% D ....±0.5% F ....±1% G ....±2% (2) Ceramic, plastic, and film capacitors of which capacitance are 10 pF or less. None ....more than ±5% pF B ....±0.1 pF C ....±0.25 pF (3) Electrolytic, Trimmer Tolerance is not described.
Temperature characteristic (Ceramic capacitor)		None ....SL For others, temperature characteristics are described. (For capacitors of 0.01 μF and no indications are described as F.)
Static electricity capacity (Ceramic capacitor)		Sometimes described with abbreviated letters as shown in Eg. 3.

Eg. 2

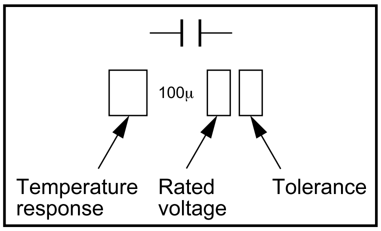

100μ
Temperature response
Rated voltage
Tolerance

Fig. 3-2-2

Eg. 3

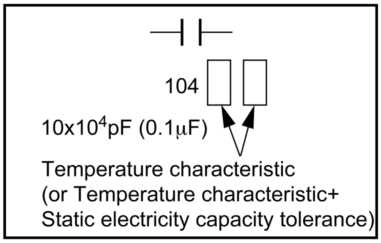

104
10x10⁴pF (0.1μF)
Temperature characteristic
(or Temperature characteristic+
Static electricity capacity tolerance)

Fig. 3-2-3

2-4. Inductor Indication

Unit	None µ m	H µH mH
Tolerance	None B C D F G K M	±5% ±0.1% ±0.25% ±0.5% ±1% ±2% ±10% ±20%

Eg. 4

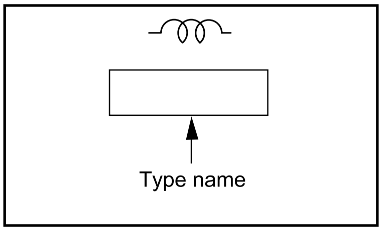


Fig. 3-2-4

2-5. Waveform and Voltage Measurement

- The waveforms for CD/DVD and RF shown in the circuit diagrams are obtained when a test disc is played back.
- All voltage values except the waveforms are expressed in DC and measured by a digital voltmeter.

Eg. 5

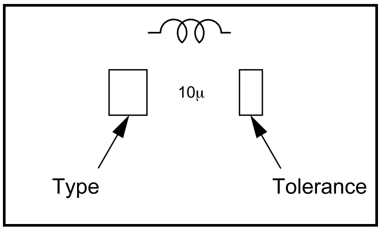


Fig. 3-2-5

3. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

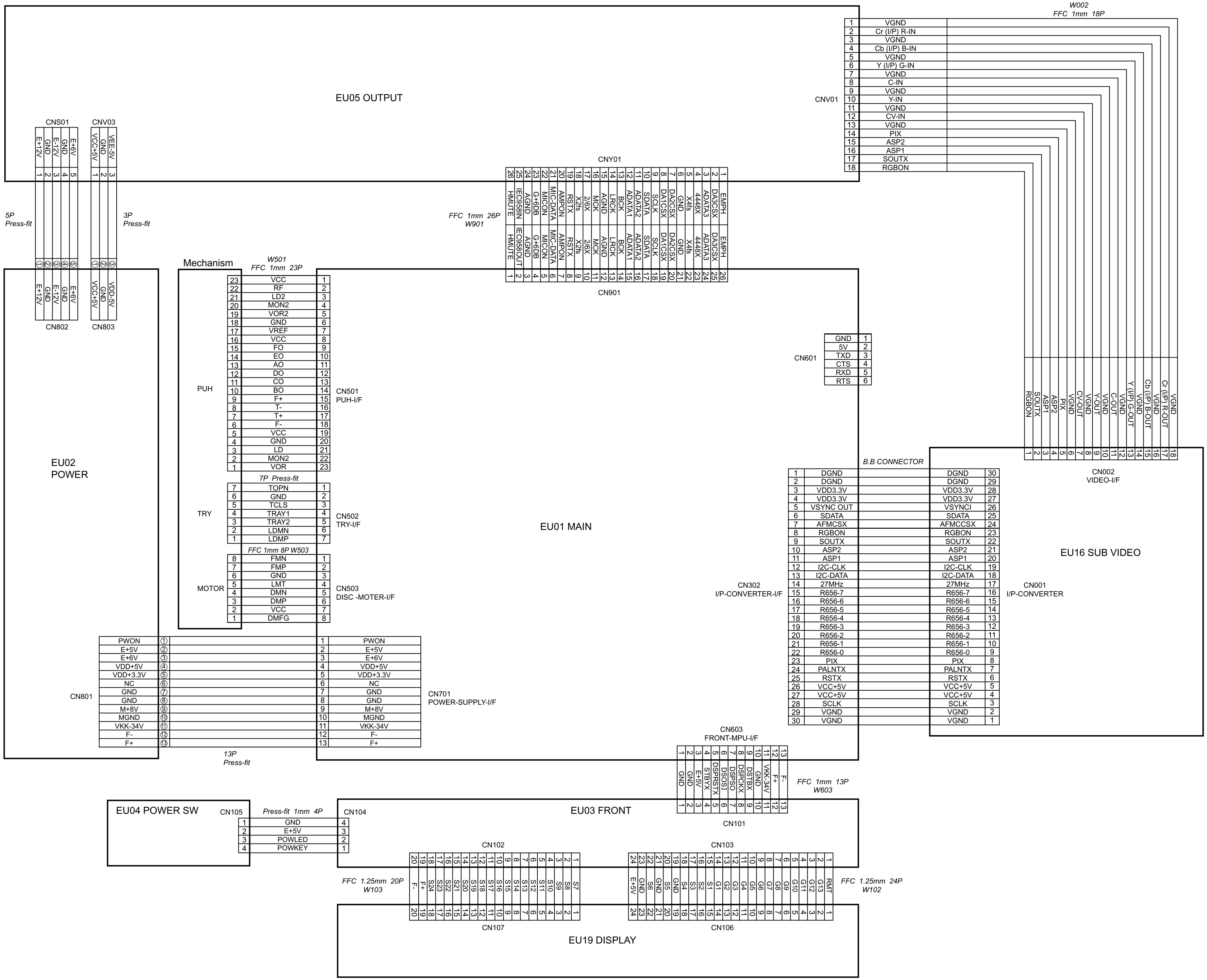

EU05 OUTPUT
EU02 POWER
EU01 MAIN
EU16 SUB VIDEO
EU04 POWER SW
EU03 FRONT
EU19 DISPLAY
Mechanism
PUH
TRY
MOTOR
W002
FFC 1mm 18P
CNV01
1 VGND
2 Cr (I/P) R-IN
3 VGND
4 Cb (I/P) B-IN
5 VGND
6 Y (I/P) G-IN
7 VGND
8 C-IN
9 VGND
10 Y-IN
11 VGND
12 CV-IN
13 VGND
14 PIX
15 ASP2
16 ASP1
17 SOUTX
18 RGBON
CN002
VIDEO-I/F
1 RGBON
2 SOUTX
3 ASP1
4 ASP2
5 PIX
6 VGND
7 CV-OUT
8 VGND
9 Y-OUT
10 VGND
11 C-OUT
12 VGND
13 Y (I/P) G-OUT
14 VGND
15 Cb (I/P) B-OUT
16 VGND
17 Cr (I/P) R-OUT
18 VGND
CNS01
CNV03
1 E+12V
2 GND
3 E-12V
4 GND
5 E+6V
1 VCC+5V
2 GND
3 VEE-5V
5P
Press-fit
3P
Press-fit
CN802
CN803
① E+12V
② GND
③ E-12V
④ GND
⑤ E+6V
① VCC+5V
② GND
③ VDD-5V
CNY01
FFC 1mm 26P
W901
CN901
1 EMPH
2 DA3CSX
3 ADATA3
4 4448X
5 X4fs
6 GND
7 DA2CSX
8 DA1CSX
9 SCLK
10 SDATA
11 ADATA2
12 ADATA1
13 BCK
14 LRCK
15 AGND
16 MCK
17 2/6X
18 X2fs
19 RSTX
20 AMPON
21 MIC-DATA
22 MICON
23 G+6DB
24 AGND
25 IEC958IN
26 HMUTE
1 HMUTE
2 IEC958OUT
3 AGND
4 G+6DB
5 MICON
6 MIC-DATA
7 AMPON
8 RSTX
9 X2fs
10 2/6X
11 MCK
12 AGND
13 LRCK
14 BCK
15 ADATA1
16 ADATA2
17 SDATA
18 SCLK
19 DA1CSX
20 DA2CSX
21 GND
22 X4fs
23 4448X
24 ADATA3
25 DA3CSX
26 EMPH
W501
FFC 1mm 23P
CN501
PUH-I/F
23 1 VCC
22 2 RF
21 3 LD2
20 4 MON2
19 5 VOR2
18 6 GND
17 7 VREF
16 8 VCC
15 9 FO
14 10 EO
13 11 AO
12 12 DO
11 13 CO
10 14 BO
9 15 F+
8 16 T-
7 17 T+
6 18 F-
5 19 VCC
4 20 GND
3 21 LD
2 22 MON2
1 23 VOR
7P Press-fit
CN502
TRY-I/F
7 1 TOPN
6 2 GND
5 3 TCLS
4 4 TRAY1
3 5 TRAY2
2 6 LDMN
1 7 LDMP
FFC 1mm 8P W503
CN503
DISC -MOTER-I/F
8 1 FMN
7 2 FMP
6 3 GND
5 4 LMT
4 5 DMN
3 6 DMP
2 7 VCC
1 8 DMFG
CN601
GND 1
5V 2
TXD 3
CTS 4
RXD 5
RTS 6
CN801
CN701
POWER-SUPPLY-I/F
① 1 PWON
② 2 E+5V
③ 3 E+6V
④ 4 VDD+5V
⑤ 5 VDD+3.3V
⑥ 6 NC
⑦ 7 GND
⑧ 8 GND
⑨ 9 M+8V
⑩ 10 MGND
⑪ 11 VKK-34V
⑫ 12 F-
⑬ 13 F+
13P
Press-fit
B.B CONNECTOR
CN302
I/P-CONVERTER-I/F
CN001
I/P-CONVERTER
1 DGND 30
2 DGND 29
3 VDD3.3V 28
4 VDD3.3V 27
5 VSYNC OUT / VSYNCI 26
6 SDATA 25
7 AFMCSX 24
8 RGBON 23
9 SOUTX 22
10 ASP2 21
11 ASP1 20
12 I2C-CLK 19
13 I2C-DATA 18
14 27MHz 17
15 R656-7 16
16 R656-6 15
17 R656-5 14
18 R656-4 13
19 R656-3 12
20 R656-2 11
21 R656-1 10
22 R656-0 9
23 PIX 8
24 PALNTX 7
25 RSTX 6
26 VCC+5V 5
27 VCC+5V 4
28 SCLK 3
29 VGND 2
30 VGND 1
CN603
FRONT-MPU-I/F
FFC 1mm 13P
W603
CN101
1 GND
2 GND
3 E+5V
4 STBYX
5 DSPRSTX
6 DSCSTJ
7 DSPSO
8 DSPCKX
9 DSTBX
10 GND
11 VKK-34V
12 F+
13 F-
CN105
Press-fit 1mm 4P
CN104
1 4 GND
2 3 E+5V
3 2 POWLED
4 1 POWKEY
CN102
CN107
FFC 1.25mm 20P
W103
1 S7
2 S8
3 S9
4 S10
5 S11
6 S12
7 S13
8 S14
9 S15
10 S16
11 S17
12 S18
13 S19
14 S20
15 S21
16 S22
17 S23
18 S24
19 F+
20 F-
CN103
CN106
FFC 1.25mm 24P
W102
1 RMT
2 G13
3 G12
4 G11
5 G10
6 G9
7 G8
8 G7
9 G6
10 G5
11 G4
12 G3
13 G2
14 G1
15 S1
16 S2
17 S3
18 S4
19 GND
20 S5
21 GND
22 S6
23 GND
24 E+5V

Fig. 3-3-1

4. BLOCK DIAGRAMS

4-1. Overall Block Diagram

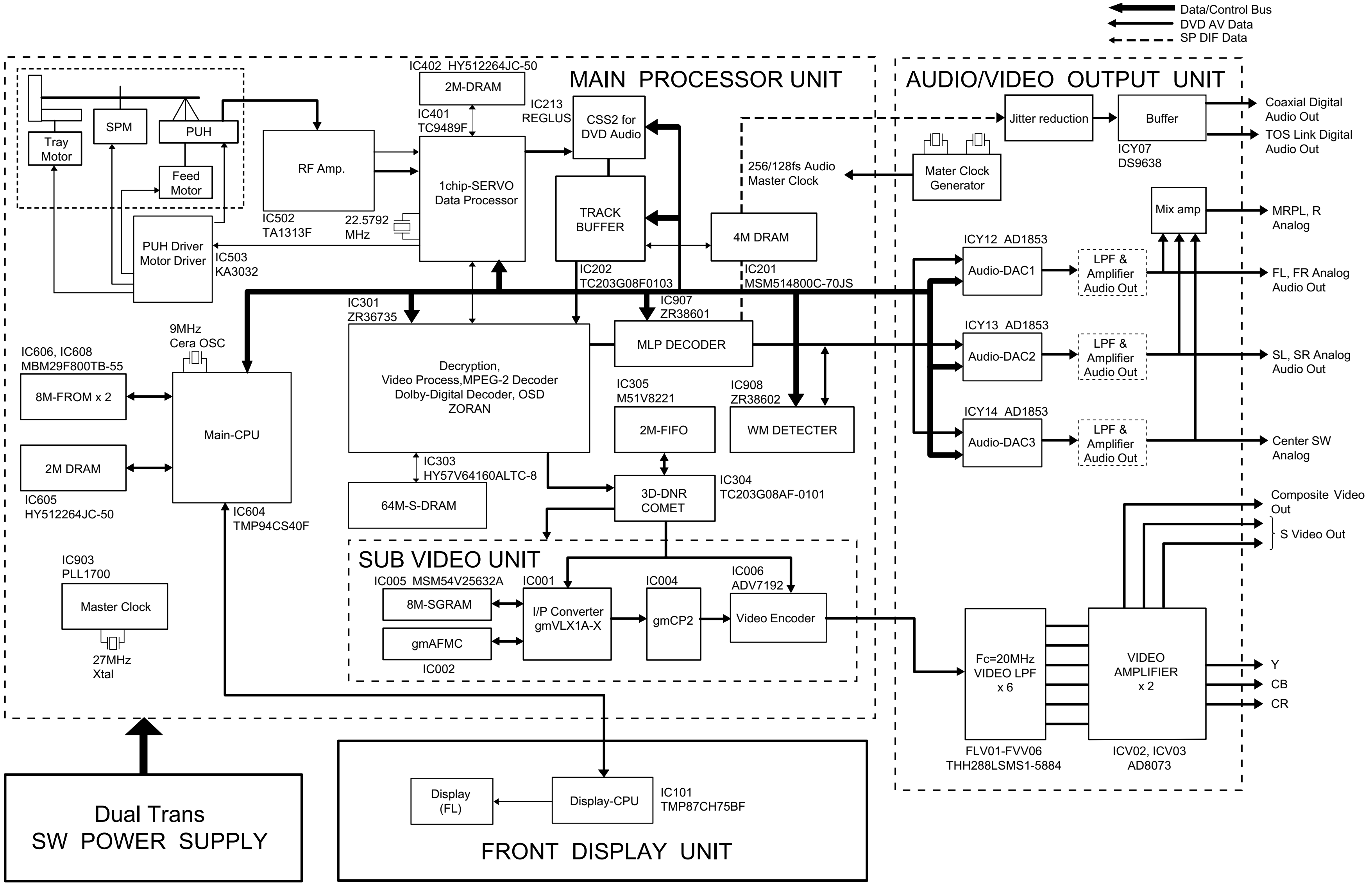

Data/Control Bus
DVD AV Data
SP DIF Data
MAIN PROCESSOR UNIT
AUDIO/VIDEO OUTPUT UNIT
Tray Motor
SPM
PUH
Feed Motor
PUH Driver Motor Driver
IC503 KA3032
RF Amp.
IC502 TA1313F
22.5792 MHz
IC402 HY512264JC-50
2M-DRAM
IC401 TC9489F
1chip-SERVO Data Processor
IC213 REGLUS
CSS2 for DVD Audio
TRACK BUFFER
IC202 TC203G08F0103
4M DRAM
IC201 MSM514800C-70JS
256/128fs Audio Master Clock
IC301 ZR36735
IC907 ZR38601
MLP DECODER
Decryption, Video Process,MPEG-2 Decoder Dolby-Digital Decoder, OSD ZORAN
IC305 M51V8221
2M-FIFO
IC908 ZR38602
WM DETECTER
IC303 HY57V64160ALTC-8
64M-S-DRAM
3D-DNR COMET
IC304 TC203G08AF-0101
9MHz Cera OSC
IC606, IC608 MBM29F800TB-55
8M-FROM x 2
2M DRAM
IC605 HY512264JC-50
Main-CPU
IC604 TMP94CS40F
IC903 PLL1700
Master Clock
27MHz Xtal
SUB VIDEO UNIT
IC005 MSM54V25632A
8M-SGRAM
gmAFMC
IC002
IC001
I/P Converter gmVLX1A-X
IC004
gmCP2
IC006 ADV7192
Video Encoder
Jitter reduction
Buffer
ICY07 DS9638
Coaxial Digital Audio Out
TOS Link Digital Audio Out
Mater Clock Generator
Mix amp
MRPL, R Analog
ICY12 AD1853
Audio-DAC1
LPF & Amplifier Audio Out
FL, FR Analog Audio Out
ICY13 AD1853
Audio-DAC2
LPF & Amplifier Audio Out
SL, SR Analog Audio Out
ICY14 AD1853
Audio-DAC3
LPF & Amplifier Audio Out
Center SW Analog
Composite Video Out
S Video Out
Fc=20MHz VIDEO LPF x 6
VIDEO AMPLIFIER x 2
Y
CB
CR
FLV01-FVV06 THH288LSMS1-5884
ICV02, ICV03 AD8073
Dual Trans SW POWER SUPPLY
Display (FL)
Display-CPU
IC101 TMP87CH75BF
FRONT DISPLAY UNIT

Fig.3-4-1

4-2. Power Supply Block Diagram

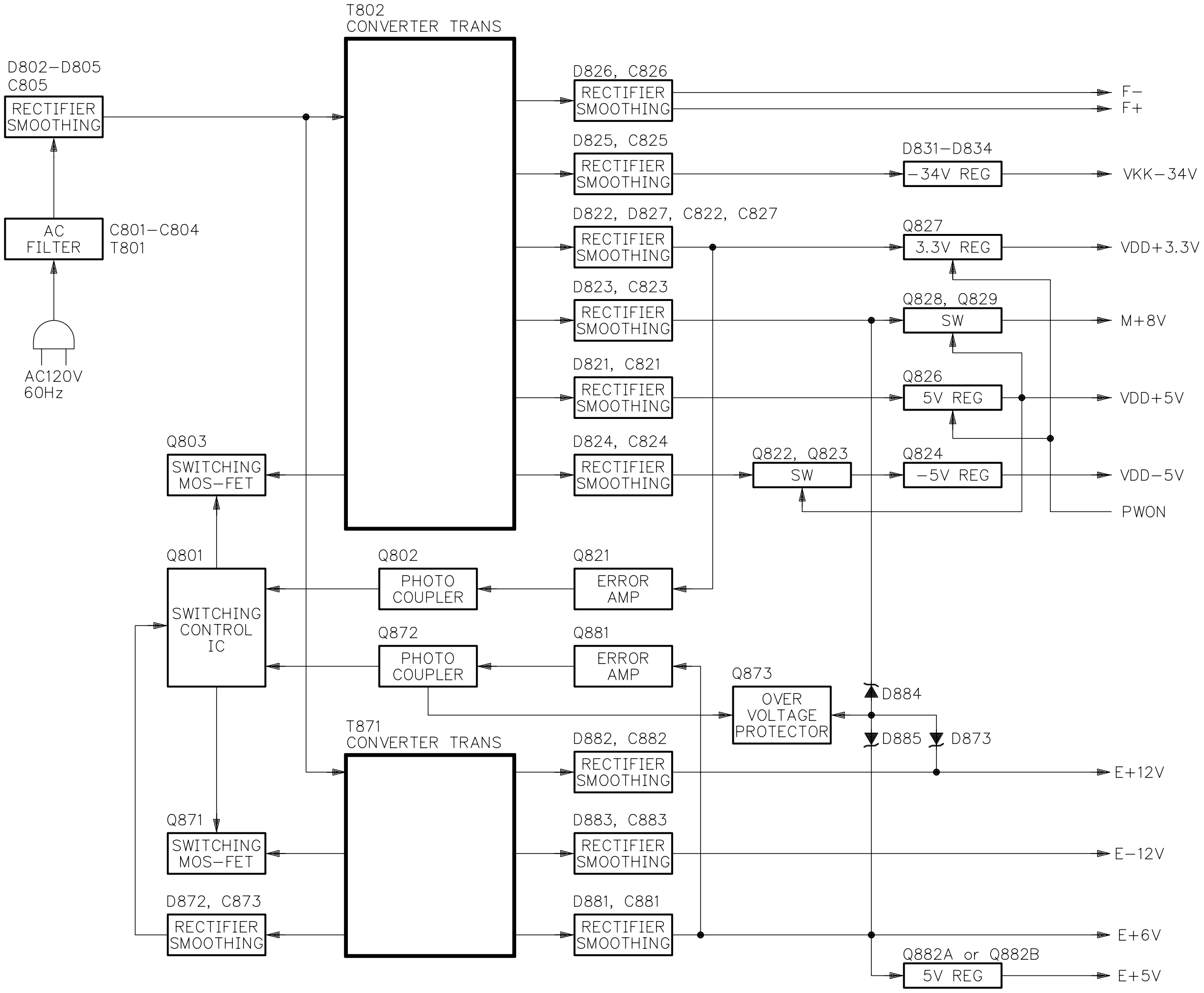

T802
CONVERTER TRANS
D802–D805
C805
RECTIFIER SMOOTHING
AC FILTER
C801–C804
T801
AC120V
60Hz
D826, C826
RECTIFIER SMOOTHING
F−
F+
D825, C825
RECTIFIER SMOOTHING
D831–D834
−34V REG
VKK−34V
D822, D827, C822, C827
RECTIFIER SMOOTHING
Q827
3.3V REG
VDD+3.3V
D823, C823
RECTIFIER SMOOTHING
Q828, Q829
SW
M+8V
D821, C821
RECTIFIER SMOOTHING
Q826
5V REG
VDD+5V
Q803
SWITCHING MOS−FET
D824, C824
RECTIFIER SMOOTHING
Q822, Q823
SW
Q824
−5V REG
VDD−5V
PWON
Q801
SWITCHING CONTROL IC
Q802
PHOTO COUPLER
Q821
ERROR AMP
Q872
PHOTO COUPLER
Q881
ERROR AMP
Q873
OVER VOLTAGE PROTECTOR
D884
D885
D873
T871
CONVERTER TRANS
D882, C882
RECTIFIER SMOOTHING
E+12V
Q871
SWITCHING MOS−FET
D883, C883
RECTIFIER SMOOTHING
E−12V
D872, C873
RECTIFIER SMOOTHING
D881, C881
RECTIFIER SMOOTHING
E+6V
Q882A or Q882B
5V REG
E+5V

Fig. 3-4-2

4-3. Front, Display, Power Switch Block Diagram

4-3-1. Display

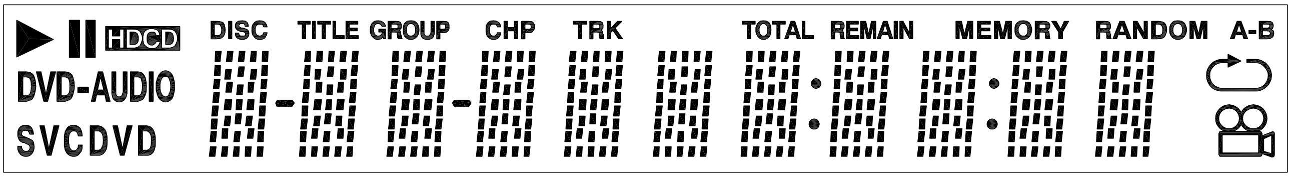

HDCD
DISC
TITLE
GROUP
CHP
TRK
TOTAL
REMAIN
MEMORY
RANDOM
A-B
DVD-AUDIO
SVCDVD

Fig. 3-4-3

4-3-2. Display Pattern

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	▶	a	a	a	a	a	a	a	a	a	a	a	**A**
P2	❚❚	b	b	b	b	b	b	b	b	b	b	b	**-B**
P3	**HDCD**	j	j	j	j	j	j	j	j	j	j	j	🔁
P4	**DVD**	h	h	h	h	h	h	h	h	h	h	h	—
P5	**-AUDIO**	k	k	k	k	k	k	k	k	k	k	k	—
P6	**S**	f	f	f	f	f	f	f	f	f	f	f	—
P7	**V**	g	g	g	g	g	g	g	g	g	g	g	🎥
P8	**C**	s	s	s	s	s	s	s	s	s	s	s	—
P9	**D**	m	m	m	m	m	m	m	m	m	m	m	—
P10	**VD**	c	c	c	c	c	c	c	c	c	c	c	—
P11	—	r	r	r	r	r	r	r	r	r	r	r	—
P12	—	n	n	n	n	n	n	n	n	n	n	n	—
P13	—	p	p	p	p	p	p	p	p	p	p	p	—
P14	—	e	e	e	e	e	e	e	e	e	e	e	—
P15	—	d	d	d	d	d	d	d	d	d	d	d	—
P16	—	t	t	t	t	t	t	t	t	t	t	t	—
P17	—	u	u	u	u	u	u	u	u	u	u	u	—
P18	—	v	v	v	v	v	v	v	v	v	v	v	—
P19	—	w	w	w	w	w	w	w	w	w	w	w	—
P20	—	▬		—	—	—	—	col1		—	—	—	—
P21	—	—	—	▬		—	—	—	—	col2		—	—
P22	—	**DISC**	**TITLE**	—	**CHP**	**TRK**	—	**TOTAL**		—	—	**RANDOM**	
P23	—	—	—	—	—	—	—	—	—	**MEMORY**		—	—
P24	—	—	**GROUP**		—	—	—	—	**REMAIN**		—	—	—

Fig. 3-4-4

4-3-3. Front, Display, Power Switch Block Diagram

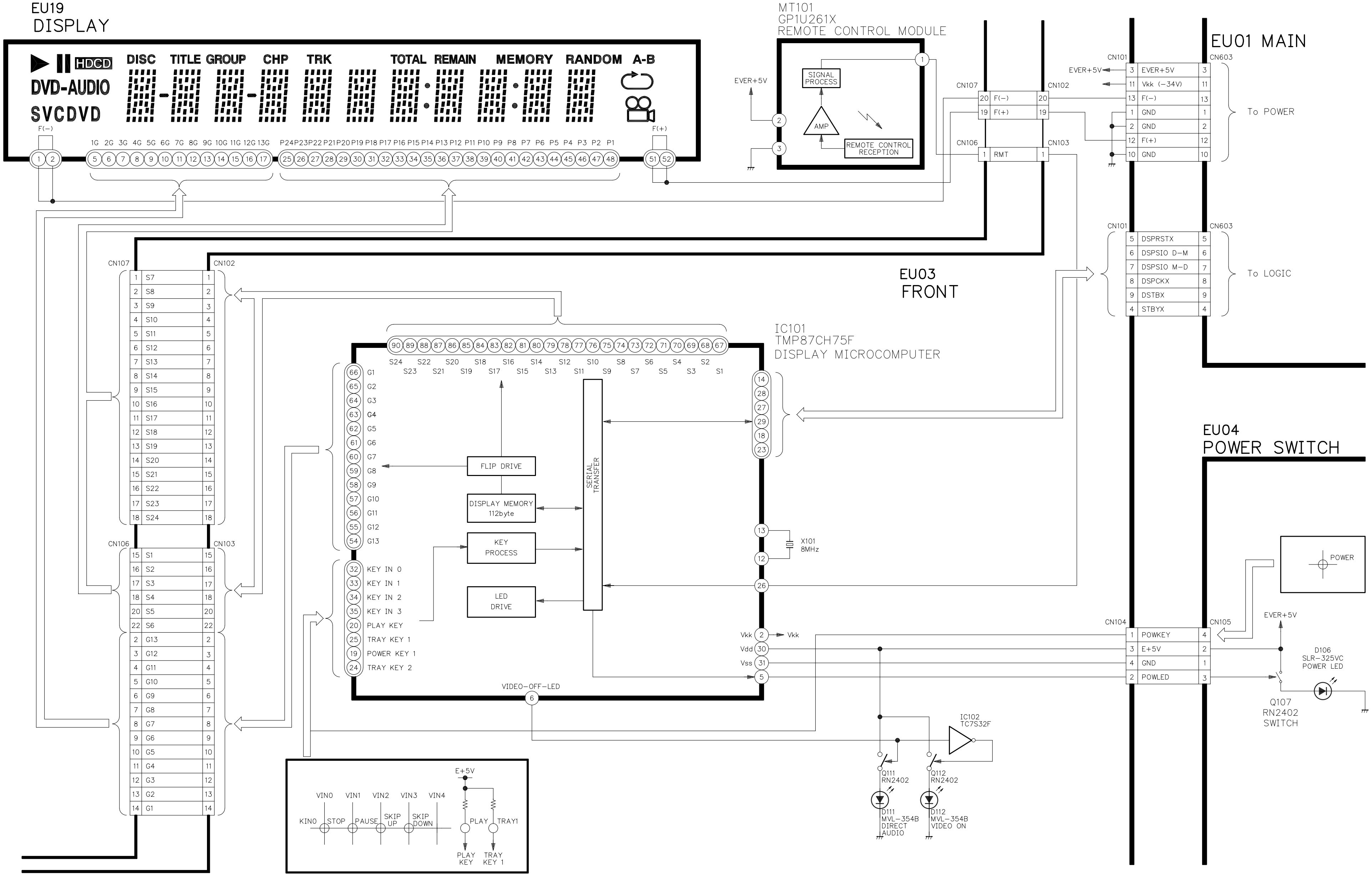

EU19
DISPLAY
HDCD
DISC
TITLE GROUP
CHP
TRK
TOTAL
REMAIN
MEMORY
RANDOM
A-B
DVD-AUDIO
SVCDVD
F(−)
F(+)
1G 2G 3G 4G 5G 6G 7G 8G 9G 10G 11G 12G 13G
P24 P23 P22 P21 P20 P19 P18 P17 P16 P15 P14 P13 P12 P11 P10 P9 P8 P7 P6 P5 P4 P3 P2 P1
MT101
GP1U261X
REMOTE CONTROL MODULE
SIGNAL PROCESS
AMP
REMOTE CONTROL RECEPTION
EVER+5V
EU01 MAIN
CN101
CN603
EVER+5V
Vkk (−34V)
F(−)
GND
F(+)
To POWER
CN107
CN102
CN106
CN103
RMT
DSPRSTX
DSPSIO D-M
DSPSIO M-D
DSPCKX
DSTBX
STBYX
To LOGIC
EU03
FRONT
IC101
TMP87CH75F
DISPLAY MICROCOMPUTER
S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23 S24
S1 S2 S3 S4 S5 S6
G13 G12 G11 G10 G9 G8 G7 G6 G5 G4 G3 G2 G1
S24 S22 S20 S18 S16 S14 S12 S10 S8 S6 S4 S2
S23 S21 S19 S17 S15 S13 S11 S9 S7 S5 S3 S1
FLIP DRIVE
DISPLAY MEMORY 112byte
KEY PROCESS
LED DRIVE
SERIAL TRANSFER
KEY IN 0
KEY IN 1
KEY IN 2
KEY IN 3
PLAY KEY
TRAY KEY 1
POWER KEY 1
TRAY KEY 2
X101
8MHz
Vkk
Vdd
Vss
VIDEO-OFF-LED
EU04
POWER SWITCH
POWER
CN104
CN105
POWKEY
E+5V
GND
POWLED
D106
SLR-325VC
POWER LED
Q107
RN2402
SWITCH
IC102
TC7S32F
Q111
RN2402
Q112
RN2402
D111
MVL-354B
DIRECT AUDIO
D112
MVL-354B
VIDEO ON
E+5V
VIN0 VIN1 VIN2 VIN3 VIN4
KIN0
STOP
PAUSE
SKIP UP
SKIP DOWN
PLAY
TRAY1
PLAY KEY
TRAY KEY 1

Fig. 3-4-5

4-4. Main Block Diagrams

4-4-1. Servo System Block Diagram

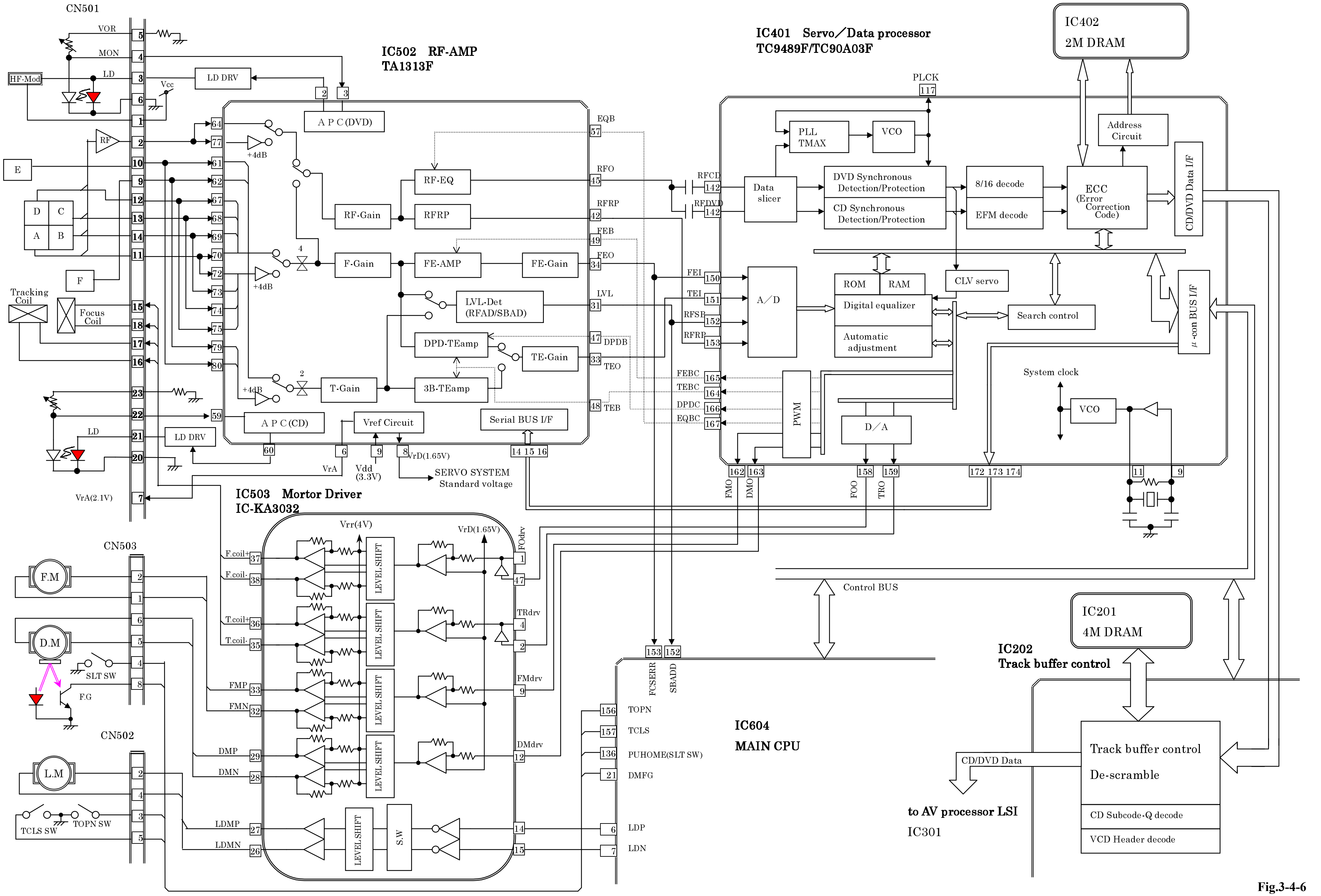

CN501
VOR
MON
LD
HF-Mod
Vcc
LD DRV
RF
E
D
C
A
B
F
Tracking Coil
Focus Coil
LD
LD DRV
VrA(2.1V)
IC502 RF-AMP
TA1313F
A P C (DVD)
+4dB
RF-EQ
RF-Gain
RFRP
F-Gain
FE-AMP
FE-Gain
LVL-Det
(RFAD/SBAD)
DPD-TEamp
TE-Gain
T-Gain
3B-TEamp
A P C (CD)
Vref Circuit
Serial BUS I/F
VrA
Vdd
(3.3V)
VrD(1.65V)
SERVO SYSTEM
Standard voltage
EQB
RFO
RFRP
FEB
FEO
LVL
DPDB
TEO
TEB
IC401 Servo／Data processor
TC9489F/TC90A03F
PLCK
PLL
TMAX
VCO
Data slicer
DVD Synchronous Detection/Protection
CD Synchronous Detection/Protection
8/16 decode
EFM decode
ECC
(Error Correction Code)
Address Circuit
CD/DVD Data I/F
IC402
2M DRAM
RFCD
RFDVD
FEI
TEI
RFSB
RFRP
A／D
ROM
RAM
Digital equalizer
Automatic adjustment
CLV servo
Search control
μ-con BUS I/F
FEBC
TEBC
DPDC
EQBC
PWM
D／A
System clock
VCO
FMO
DMO
FOO
TRO
IC503 Mortor Driver
IC-KA3032
Vrr(4V)
VrD(1.65V)
LEVEL SHIFT
F.coil+
F.coil-
T.coil+
T.coil-
FMP
FMN
DMP
DMN
LDMP
LDMN
FOdrv
TRdrv
FMdrv
DMdrv
S.W
CN503
F.M
D.M
SLT SW
F.G
CN502
L.M
TCLS SW
TOPN SW
Control BUS
FCSERR
SBADD
TOPN
TCLS
PUHOME(SLT SW)
DMFG
LDP
LDN
IC604
MAIN CPU
IC201
4M DRAM
IC202
Track buffer control
Track buffer control
De-scramble
CD Subcode-Q decode
VCD Header decode
CD/DVD Data
to AV processor LSI
IC301

Fig.3-4-6

4-4-2. Logical System Block Diagram

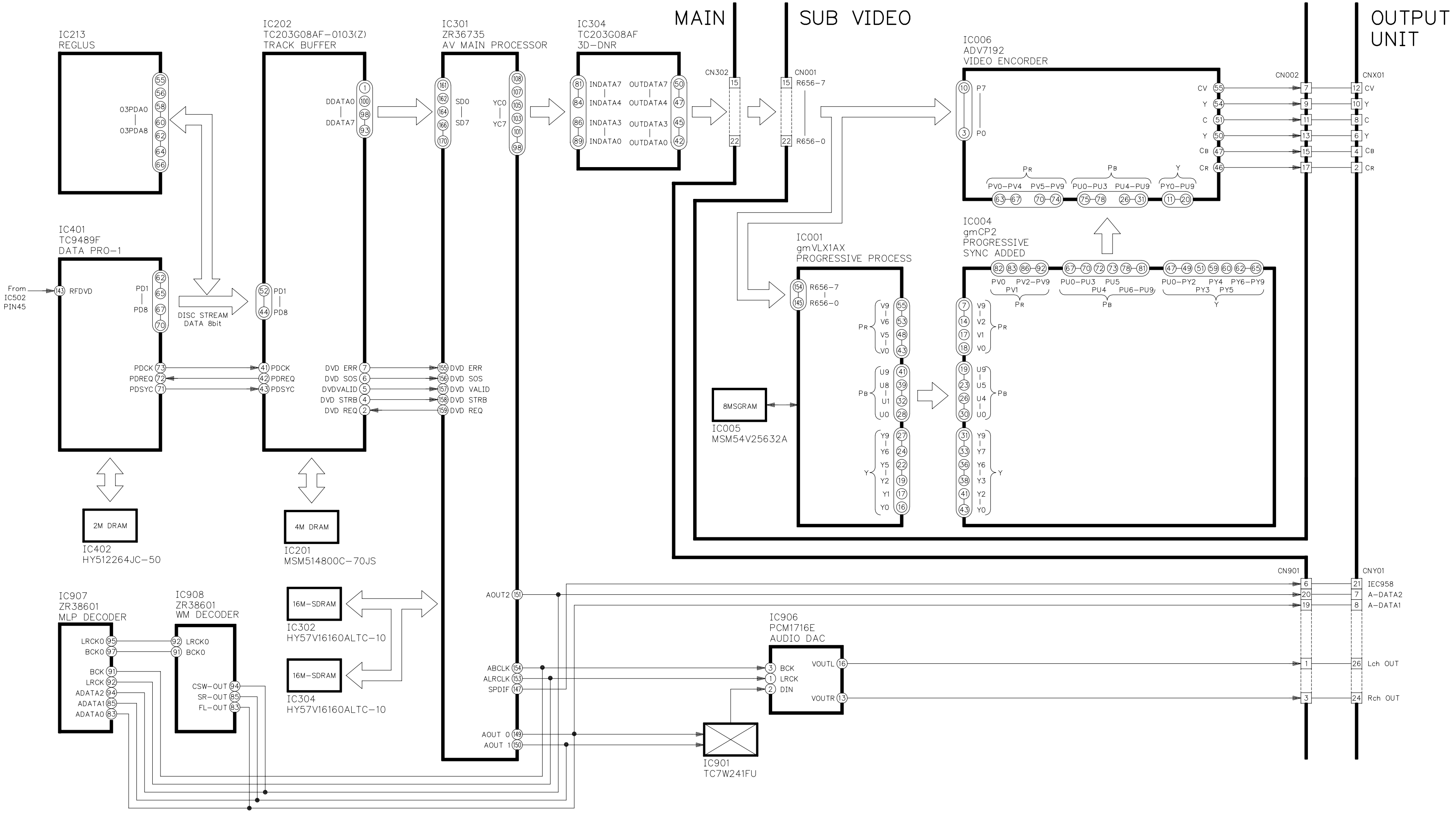

MAIN
SUB VIDEO
OUTPUT UNIT
IC213
REGLUS
03PDA0
03PDA8
IC202
TC203G08AF-0103(Z)
TRACK BUFFER
DDATA0
DDATA7
IC301
ZR36735
AV MAIN PROCESSOR
SD0
SD7
YC0
YC7
IC304
TC203G08AF
3D-DNR
INDATA7
INDATA4
INDATA3
INDATA0
OUTDATA7
OUTDATA4
OUTDATA3
OUTDATA0
CN302
CN001
R656-7
R656-0
IC006
ADV7192
VIDEO ENCORDER
P7
P0
CV
Y
C
Y
CB
CR
PR
PB
Y
PV0-PV4
PV5-PV9
PU0-PU3
PU4-PU9
PY0-PY9
CN002
CNX01
IC401
TC9489F
DATA PRO-1
From IC502 PIN45
RFDVD
PD1
PD8
DISC STREAM DATA 8bit
PDCK
PDREQ
PDSYC
DVD ERR
DVD SOS
DVDVALID
DVD STRB
DVD REQ
DVD VALID
IC004
gmCP2
PROGRESSIVE
SYNC ADDED
PV0
PV1
PV2-PV9
PU0-PU3
PU4
PU5
PU6-PU9
PU0-PY2
PY3
PY4
PY5
PY6-PY9
IC001
gmVLX1AX
PROGRESSIVE PROCESS
V9
V6
V5
V0
U9
U8
U1
U0
Y9
Y6
Y5
Y2
Y1
Y0
V2
V1
U5
U4
Y7
Y3
8MSGRAM
IC005
MSM54V25632A
2M DRAM
IC402
HY512264JC-50
4M DRAM
IC201
MSM514800C-70JS
16M-SDRAM
IC302
HY57V16160ALTC-10
16M-SDRAM
IC304
HY57V16160ALTC-10
IC907
ZR38601
MLP DECODER
LRCK0
BCK0
BCK
LRCK
ADATA2
ADATA1
ADATA0
IC908
ZR38601
WM DECODER
LRCK0
BCK0
CSW-OUT
SR-OUT
FL-OUT
AOUT2
ABCLK
ALRCLK
SPDIF
AOUT 0
AOUT 1
IC906
PCM1716E
AUDIO DAC
BCK
LRCK
DIN
VOUTL
VOUTR
IC901
TC7W241FU
CN901
CNY01
IEC958
A-DATA2
A-DATA1
Lch OUT
Rch OUT

Fig. 3-4-7

4-5. Output Block Diagram

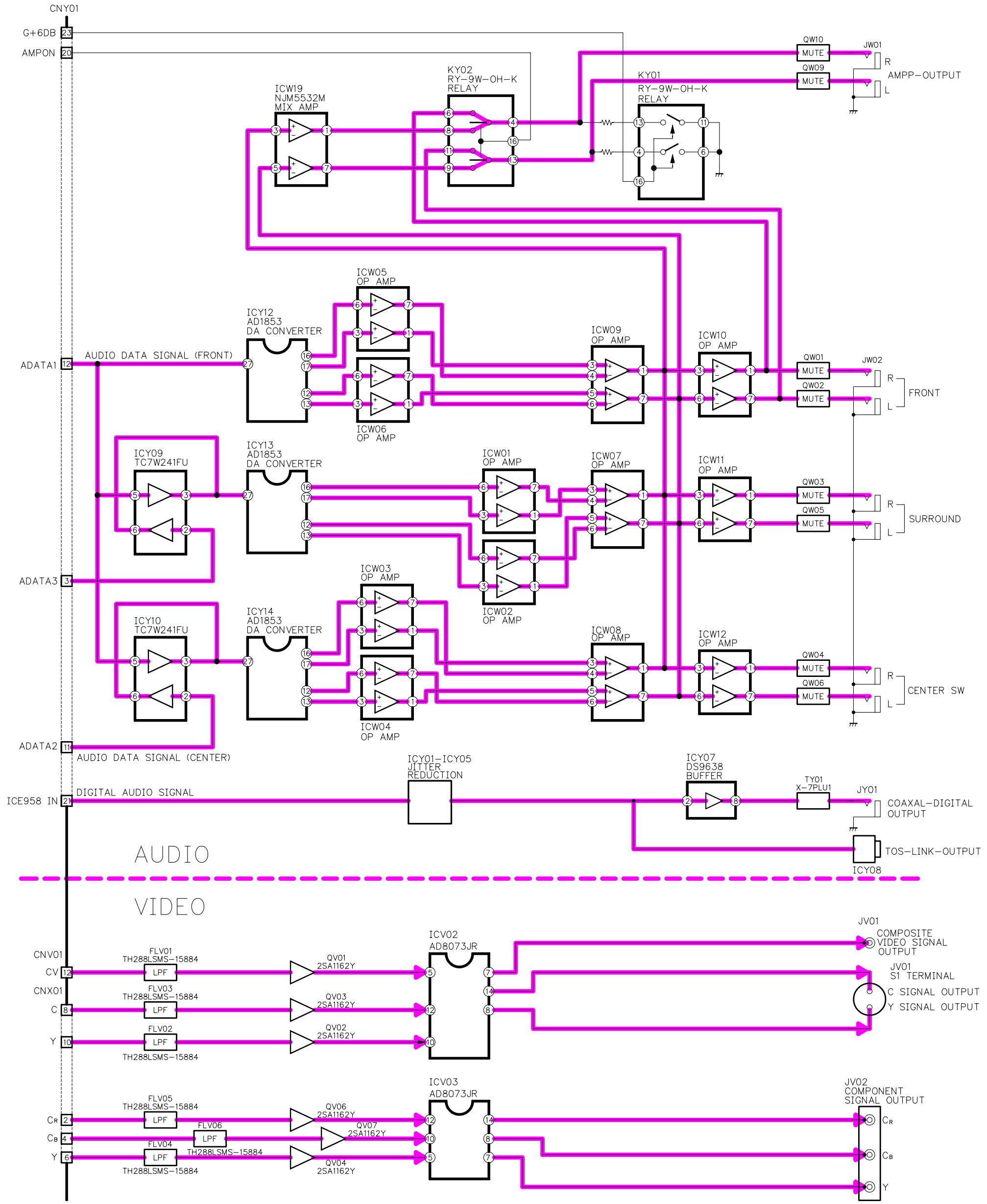

CNY01
G+6DB 23
AMPON 20
ICW19
NJM5532M
MIX AMP
KY02
RY-9W-OH-K
RELAY
KY01
RY-9W-OH-K
RELAY
QW10
MUTE
QW09
MUTE
JW01
R
L
AMPP-OUTPUT
ICW05
OP AMP
ICY12
AD1853
DA CONVERTER
AUDIO DATA SIGNAL (FRONT)
ADATA1 12
ICW06
OP AMP
ICW09
OP AMP
ICW10
OP AMP
QW01
MUTE
QW02
MUTE
JW02
R
L
FRONT
ICY09
TC7W241FU
ICY13
AD1853
DA CONVERTER
ICW01
OP AMP
ICW07
OP AMP
ICW11
OP AMP
QW03
MUTE
QW05
MUTE
R
L
SURROUND
ICW02
OP AMP
ADATA3 3
ICW03
OP AMP
ICY10
TC7W241FU
ICY14
AD1853
DA CONVERTER
ICW08
OP AMP
ICW12
OP AMP
QW04
MUTE
QW06
MUTE
R
L
CENTER SW
ICW04
OP AMP
ADATA2 11
AUDIO DATA SIGNAL (CENTER)
ICY01-ICY05
JITTER
REDUCTION
ICY07
DS9638
BUFFER
TY01
X-7PLU1
JY01
COAXAL-DIGITAL
OUTPUT
ICE958 IN 21
DIGITAL AUDIO SIGNAL
TOS-LINK-OUTPUT
ICY08
AUDIO
VIDEO
CNV01
CV 12
CNX01
C 8
Y 10
FLV01
TH288LSMS-15884
LPF
FLV03
TH288LSMS-15884
LPF
FLV02
LPF
TH288LSMS-15884
QV01
2SA1162Y
QV03
2SA1162Y
QV02
2SA1162Y
ICV02
AD8073JR
JV01
COMPOSITE
VIDEO SIGNAL
OUTPUT
JV01
S1 TERMINAL
C SIGNAL OUTPUT
Y SIGNAL OUTPUT
CR 2
CB 4
Y 6
FLV05
TH288LSMS-15884
LPF
FLV06
LPF
TH288LSMS-15884
FLV04
LPF
TH288LSMS-15884
QV06
2SA1162Y
QV07
2SA1162Y
QV04
2SA1162Y
ICV03
AD8073JR
JV02
COMPONENT
SIGNAL OUTPUT
CR
CB
Y

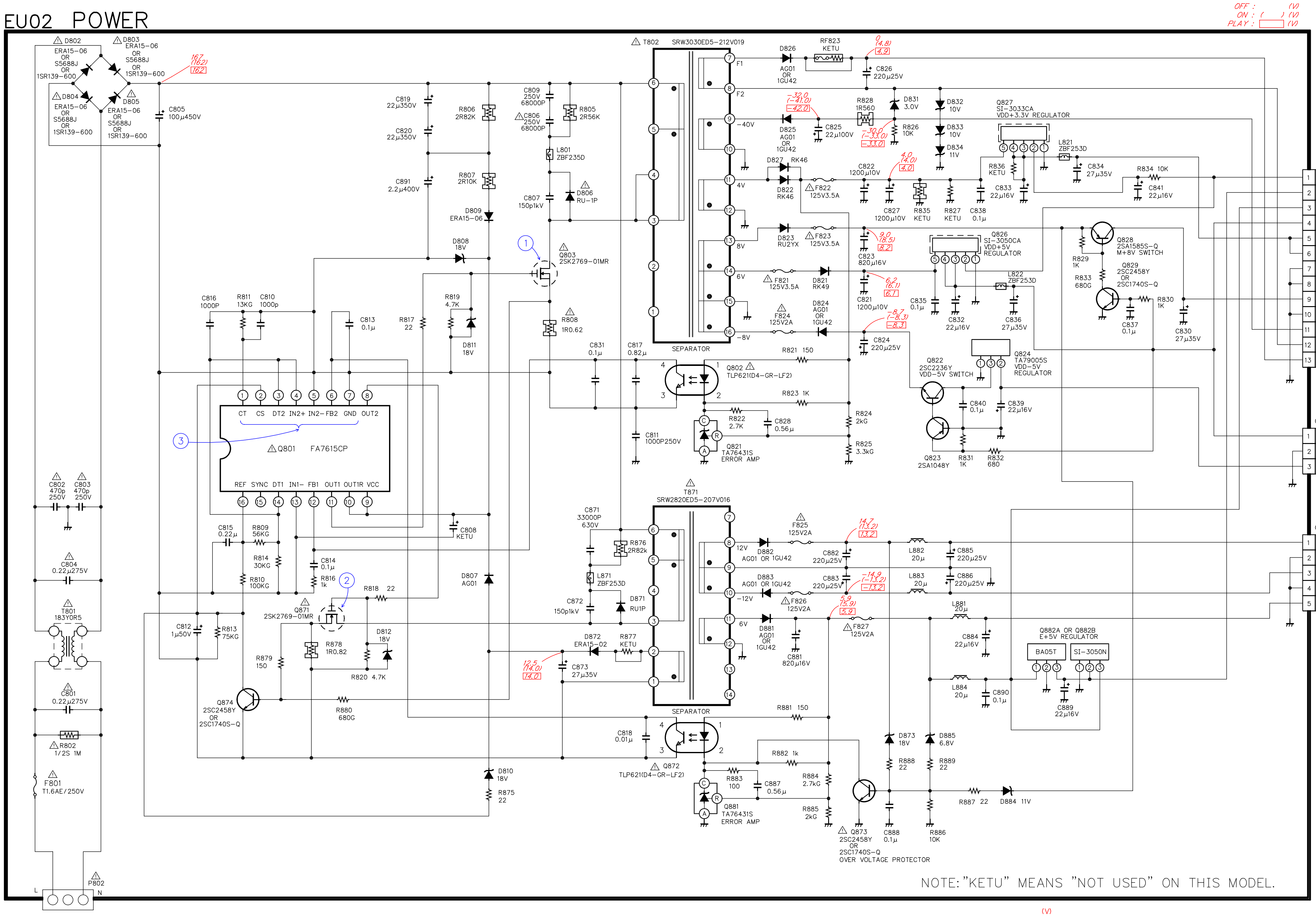
Fig. 3-4-8

1 2 3 4 5 6 7 8 9 10

A B C D E F G

5. CIRCUIT DIAGRAMS

5-1. Power Supply Circuit Diagram



EU02 POWER
OFF : ( ) (V)
ON : ( ) (V)
PLAY : ( ) (V)
D802 ERA15–06 OR S5688J OR 1SR139–600
D803 ERA15–06 OR S5688J OR 1SR139–600
D804 ERA15–06 OR S5688J OR 1SR139–600
D805 ERA15–06 OR S5688J OR 1SR139–600
C805 100μ450V
C819 22μ350V
C820 22μ350V
C891 2.2μ400V
R806 2R82K
R807 2R10K
C809 250V 6800P
C806 250V 6800P
R805 2R56K
L801 ZBF253D
C807 150p1kV
D806 RU–1P
D809 ERA15–06
D808 18V
Q803 2SK2769–01MR
R808 1R0.62
T802 SRW3030ED5–212V019
D826 AG01 OR 1GU42
RF823 KETU
C826 220μ25V
D831 3.0V
D832 10V
D833 10V
D834 11V
R828 1R560
R826 10K
D825 AG01 OR 1GU42
C825 22μ100V
Q827 SI–3033CA VDD+3.3V REGULATOR
L821 ZBF253D
D827 RK46
D822 RK46
F822 125V3.5A
C822 1200μ10V
C827 1200μ10V
R835 KETU
R827 KETU
C838 0.1μ
R836 KETU
C833 22μ16V
C834 27μ35V
R834 10K
C841 22μ16V
D823 RU2YX
F823 125V3.5A
C823 820μ16V
Q826 SI–3050CA VDD+5V REGULATOR
Q828 2SA1585S–Q M+8V SWITCH
R829 1K
Q829 2SC2458Y OR 2SC1740S–Q
R833 680Ω
F821 125V3.5A
D821 RK49
C821 1200μ10V
C835 0.1μ
C832 22μ16V
L822 ZBF253D
C836 27μ35V
C837 0.1μ
R830 1K
C830 27μ35V
F824 125V2A
D824 AG01 OR 1GU42
C824 220μ25V
Q824 TA79005S VDD–5V REGULATOR
Q822 2SC2236Y VDD–5V SWITCH
C840 0.1μ
C839 22μ16V
Q823 2SA1048Y
R831 1K
R832 680
F1 F2 –40V 4V 8V 6V –8V
SEPARATOR
R821 150
Q802 TLP621(D4–GR–LF2)
R823 1K
R822 2.7K
C828 0.56μ
R824 2kΩ
R825 3.3kΩ
Q821 TA76431S ERROR AMP
C831 0.1μ
C817 0.82μ
C811 1000P250V
C816 1000P
R811 1.3KΩ
C810 1000p
C813 0.1μ
R817 22
R819 4.7K
D811 18V
Q801 FA7615CP
CT CS DT2 IN2+ IN2– FB2 GND OUT2
REF SYNC DT1 IN1– FB1 OUT1 OUT1R VCC
C802 470p 250V
C803 470p 250V
C804 0.22μ275V
T801 183Y0R5
C801 0.22μ275V
R802 1/2S 1M
F801 T1.6AE/250V
P802
L N
AC120V 60Hz
C815 0.22μ
R809 56KΩ
R814 30KΩ
R810 100KΩ
C814 0.1μ
R816 1k
C808 KETU
D807 AG01
R818 22
Q871 2SK2769–01MR
C812 1μ50V
R813 75KΩ
R879 150
R878 1R0.82
D812 18V
R820 4.7K
Q874 2SC2458Y OR 2SC1740S–Q
R880 680Ω
D810 18V
R875 22
C871 3300P 630V
R876 2R82k
L871 ZBF253D
C872 150p1kV
D871 RU1P
D872 ERA15–02
R877 KETU
C873 27μ35V
T871 SRW2820ED5–207V016
12V –12V 6V
F825 125V2A
D882 AG01 OR 1GU42
C882 220μ25V
D883 AG01 OR 1GU42
C883 220μ25V
F826 125V2A
D881 AG01 OR 1GU42
C881 820μ16V
F827 125V2A
L882 20μ
C885 220μ25V
L883 20μ
C886 220μ25V
L881 20μ
C884 22μ16V
Q882A OR Q882B E+5V REGULATOR
BA05T
SI–3050N
L884 20μ
C890 0.1μ
C889 22μ16V
R881 150
C818 0.01μ
Q872 TLP621(D4–GR–LF2)
R882 1k
R883 100
C887 0.56μ
R884 2.7kΩ
R885 2kΩ
Q881 TA76431S ERROR AMP
D873 18V
D885 6.8V
R888 22
R889 22
Q873 2SC2458Y OR 2SC1740S–Q OVER VOLTAGE PROTECTOR
C888 0.1μ
R886 10K
R887 22
D884 11V
CN801 13PIN
1 PWON
2 E+5V
3 E+6V
4 VDD+5V
5 VDD+3.3V
6 VDD+3.3V
7 GND
8 GND
9 M+8V
10 MGND
11 VKK–34V
12 F–
13 F+
CN803 3PIN
1 VDD+5V
2 GND
3 VDD–5V
CN802 5PIN
1 E+12V
2 GND
3 E–12V
4 GND
5 E+6V

NOTE: "KETU" MEANS "NOT USED" ON THIS MODEL.

(V)

	Q801													Q874			Q821			Q822			Q823			Q824		
	2	3	4	5	6	7	9	10	12	13	14	15	16	E	C	B	A	C	R	E	C	B	E	C	B	1	2	3
OFF	1.05	0.86	0.86	0	0.4	0	12.0	12.0	0	0	0.86	0	2.45	0	1.05	0	0	2.5	2.5	–8.7	0	–7.8	0	–7.8	0	0	0	0
ON	1.05	0.86	0.86	0	0.5	0	13.5	13.5	0.5	0	0.86	0	2.45	0	1.05	0	0	3.1	2.5	–8.7	–8.2	–7.5	0.6	–7.5	0	0	–5.0	–8.2
PLAY	1.05	0.86	0.86	0	0.5	0	13.5	13.5	0.5	0	0.86	0	2.45	0	1.05	0	0	3.1	2.5	–8.7	–8.2	–7.5	0.6	–7.5	0	0	–5.0	–8.2

(V)

	Q826					Q827					Q828			Q829			Q873			Q882A			Q882B			Q881		
	1	2	3	4	5	1	2	3	4	5	E	C	B	E	C	B	E	C	B	1	2	3	1	2	3	A	C	R
OFF	0	0	0	0	6.2	0	0	0	0	4.0	9.0	1.7	9.0	0	9.0	0	0	4.9	0	5.9	0	5.0	0	5.0	5.9	0	4.9	2.5
ON	0	5.0	5.0	5.0	6.1	0	5.0	3.3	3.3	4.0	8.5	8.4	7.8	0	0	0.7	0	4.9	0	5.9	0	5.0	0	5.0	5.9	0	4.9	2.5
PLAY	0	5.0	5.0	5.0	6.1	0	5.0	3.3	3.3	4.0	8.2	8.1	7.5	0	0	0.7	0	4.9	0	5.9	0	5.0	0	5.0	5.9	0	4.9	2.5

NOTE : In the OFF mode, the switching operation on T802 side is carried out intermittently.

Fig. 3-5-1

Power Supply Circuit Diagram

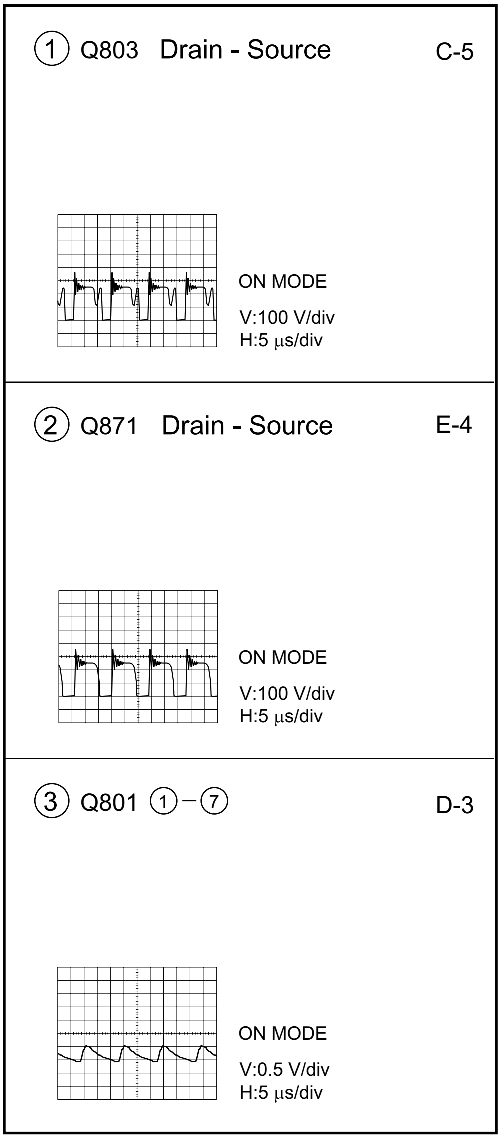


Fig. 3-5-2

Part No.	Location	Part No.	Location	Part No.	Location
C801	E2	D802	A2	Q829	C8
C802	D2	D803	A2	Q871	E3
C803	D2	D804	B2	Q872	F5
C804	D2	D805	B2	Q873	F7
C805	B3	D806	B5	Q874	E3
C806	B5	D807	D4	Q881	F6
C807	B5	D808	C4	Q882A	E8
C808	D4	D809	B4	R802	F2
C809	B5	D810	F5	R805	B5
C810	C3	D811	C4	R806	B4
C811	D5	D812	E4	R807	B4
C812	E3	D821	C6	R808	C5
C813	C4	D822	B6	R809	D3
C814	D4	D823	B6	R810	E3
C815	D3	D824	C6	R811	C3
C816	C3	D825	B6	R813	E3
C817	C5	D826	A6	R814	D3
C818	E5	D827	B6	R816	E4
C819	B4	D831	B7	R817	C4
C820	B4	D832	B7	R818	E4
C821	C7	D833	B7	R819	C4
C822	B7	D834	B7	R820	E4
C823	C7	D871	E5	R821	C6
C824	C7	D872	E5	R822	D6
C825	B6	D873	E7	R823	C6
C826	A7	D881	E6	R824	D7
C827	B7	D882	D6	R825	D7
C828	D6	D883	E6	R826	B7
C830	C8	D884	F7	R827	B7
C831	C5	D885	E7	R828	B7
C832	C7	F801	F2	R829	C8
C833	B7	F821	C6	R830	C8
C834	B8	F822	B6	R831	D7
C835	C7	F823	B6	R832	D7
C836	C7	F824	C6	R833	C8
C837	C8	F825	D6	R834	B8
C838	B7	F826	E6	R835	B7
C839	C7	F827	E7	R836	B7
C840	C7	L801	B5	R875	F5
C841	B8	L821	B8	R876	D5
C871	D5	L822	C7	R877	E5
C872	E5	L871	E5	R878	E4
C873	E5	L881	E7	R879	E3
C881	E6	L882	D7	R880	E4
C882	D6	L883	D7	R881	E6
C883	E6	L884	E7	R882	F6
C884	E7	P802	F2	R883	F6
C885	D7	Q801	D3	R884	F6
C886	D7	Q802	C6	R885	F6
C887	F6	Q803	C5	R886	F7
C888	F7	Q821	D6	R887	F7
C889	E8	Q822	C7	R888	F7
C890	E7	Q823	D7	R889	F7
C891	B4	Q824	C8	RF823	A6
CN801	B9	Q826	B7	T801	E2
CN802	D9	Q827	B7	T802	A5
CN803	D9	Q828	B8	T871	D6

5-2. Front, Display, Power Switch Circuit Diagram

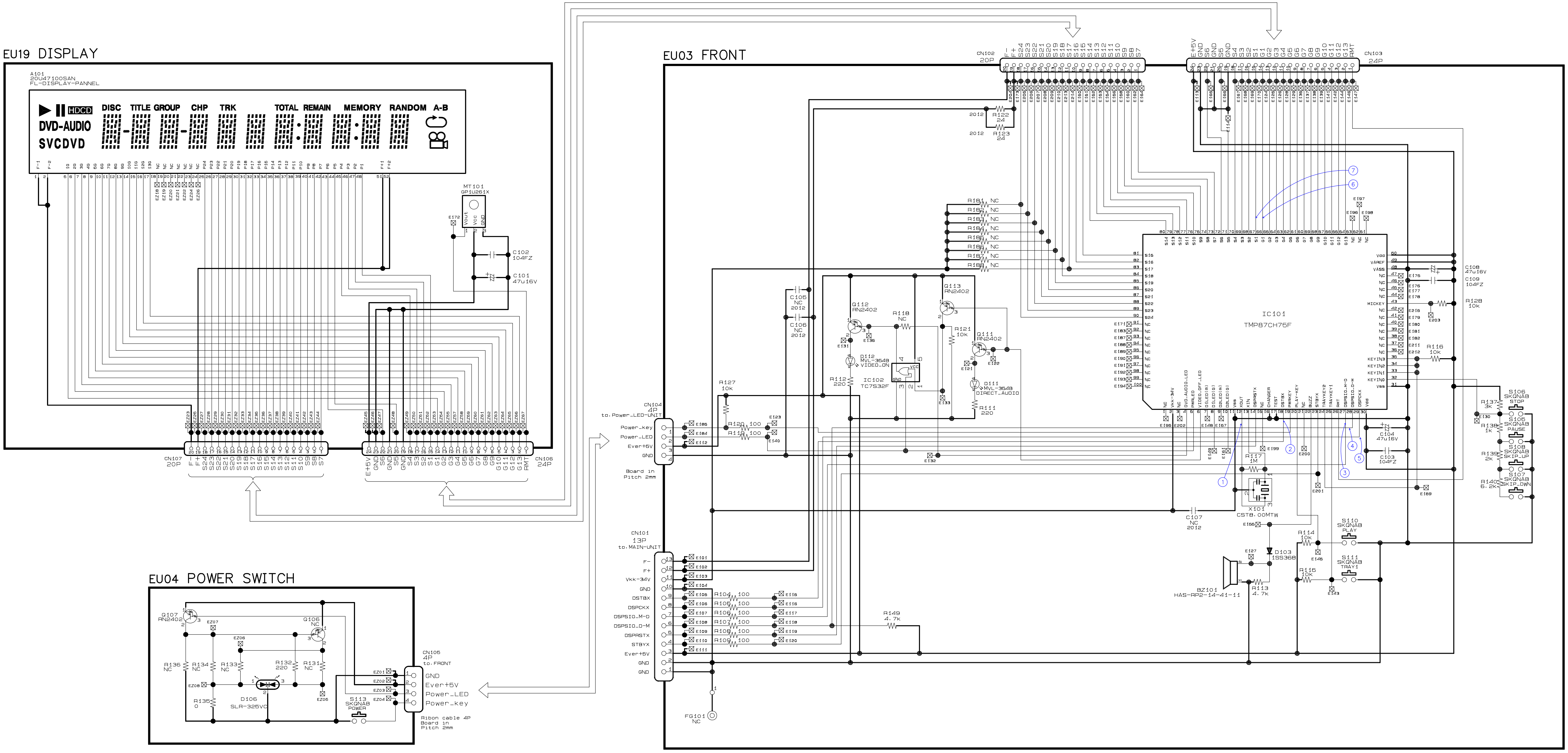
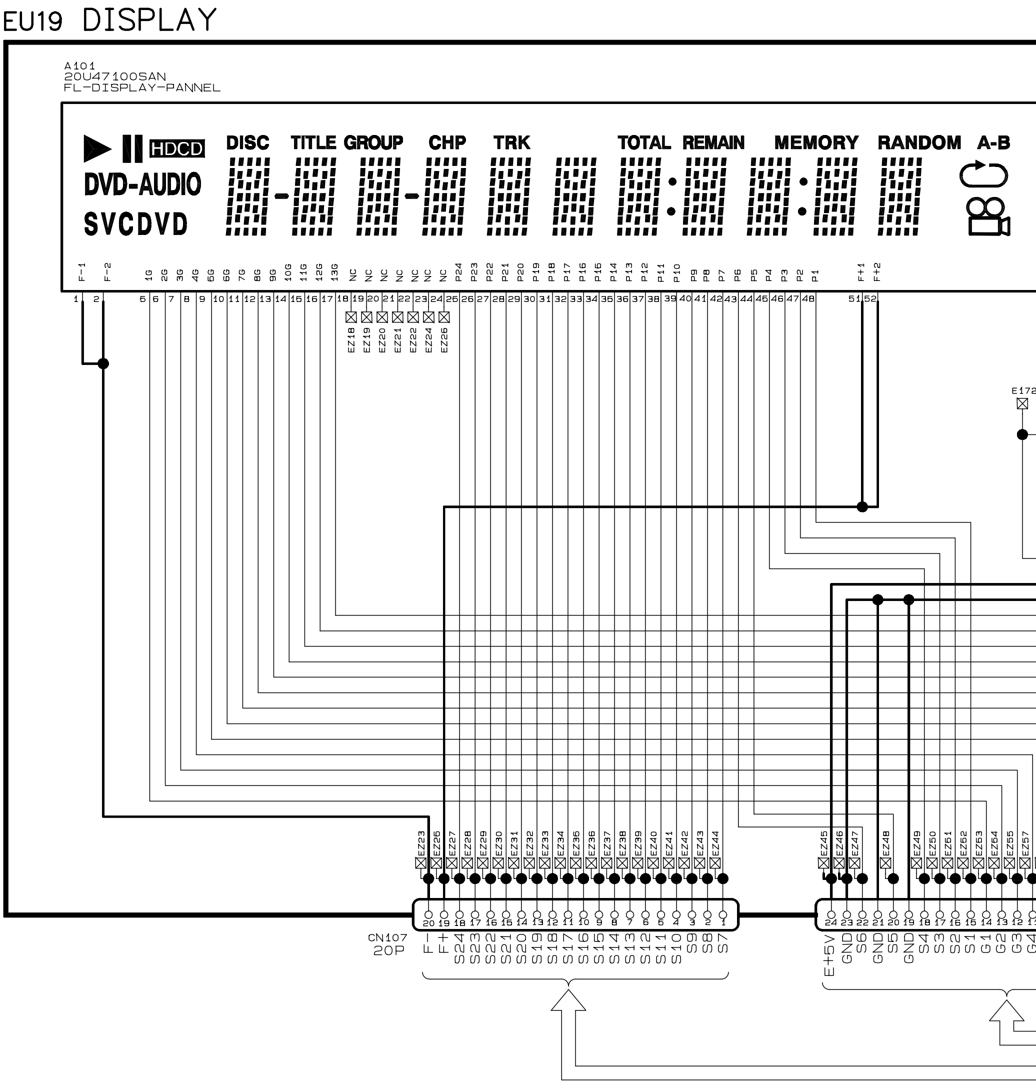

EU19 DISPLAY
A101
20U47100SAN
FL-DISPLAY-PANNEL
DISC
TITLE
GROUP
CHP
TRK
TOTAL
REMAIN
MEMORY
RANDOM
A-B
HDCD
DVD-AUDIO
SVCDVD
MT101
GP1U261X
Vout
Vcc
GND
C102
104FZ
C101
47u16V
CN107
20P
CN106
24P
EU03 FRONT
CN102
20P
CN103
24P
R122
24
R123
24
IC101
TMP87CH75F
C108
47u16V
C109
104FZ
R128
10k
R116
10k
S106
SKQNAB
STOP
S105
SKQNAB
PAUSE
S108
SKQNAB
SKIP_UP
S107
SKQNAB
SKIP_DWN
R137
3k
R138
1k
R139
2k
R140
6.2k
C104
47u16V
C103
104FZ
R117
1M
X101
CST8.00MTW
C107
NC
2012
S110
SKQNAB
PLAY
S111
SKQNAB
TRAY1
R114
10k
R115
10k
D103
1SS368
BZ101
HAS-RP2-14-41-11
R113
4.7k
R149
4.7k
Q112
RN2402
Q113
RN2402
Q111
RN2402
R118
NC
R121
10k
D112
MVL-364B
VIDEO_ON
D111
MVL-364B
DIRECT_AUDIO
IC102
TC7S32F
R112
220
R111
220
R127
10k
R120
100
R119
100
C105
NC
2012
C106
NC
2012
R181 NC
R182 NC
R183 NC
R184 NC
R185 NC
R186 NC
R187 NC
R188 NC
CN104
4P
to.Power_LED-UNIT
Power_key
Power_LED
Ever+5V
GND
Board in
Pitch 2mm
CN101
13P
to.MAIN-UNIT
F-
F+
Vkk-34V
GND
DSTBX
DSPCKX
DSPSIO_M-D
DSPSIO_D-M
DSPRSTX
STBYX
Ever+5V
GND
GND
R104 100
R105 100
R106 100
R107 100
R108 100
R109 100
FG101
NC
EU04 POWER SWITCH
Q107
RN2402
Q106
NC
R136
NC
R134
NC
R133
NC
R132
220
R131
NC
R135
0
D106
SLR-325VC
S113
SKQNAB
POWER
CN105
4P
to.FRONT
GND
Ever+5V
Power_LED
Power_key
Ribbon cable 4P
Board in
Pitch 2mm

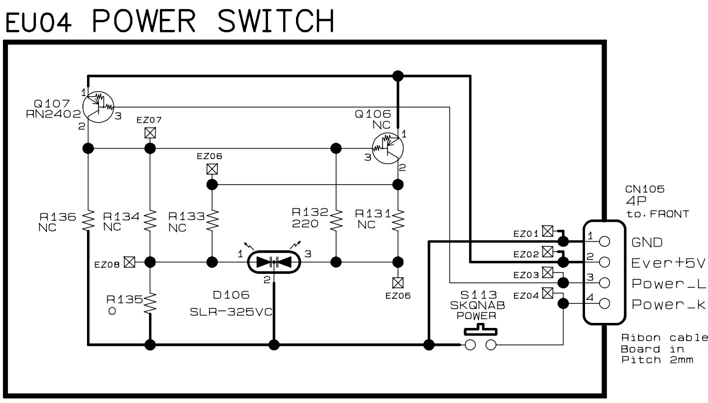
Fig. 3-5-3

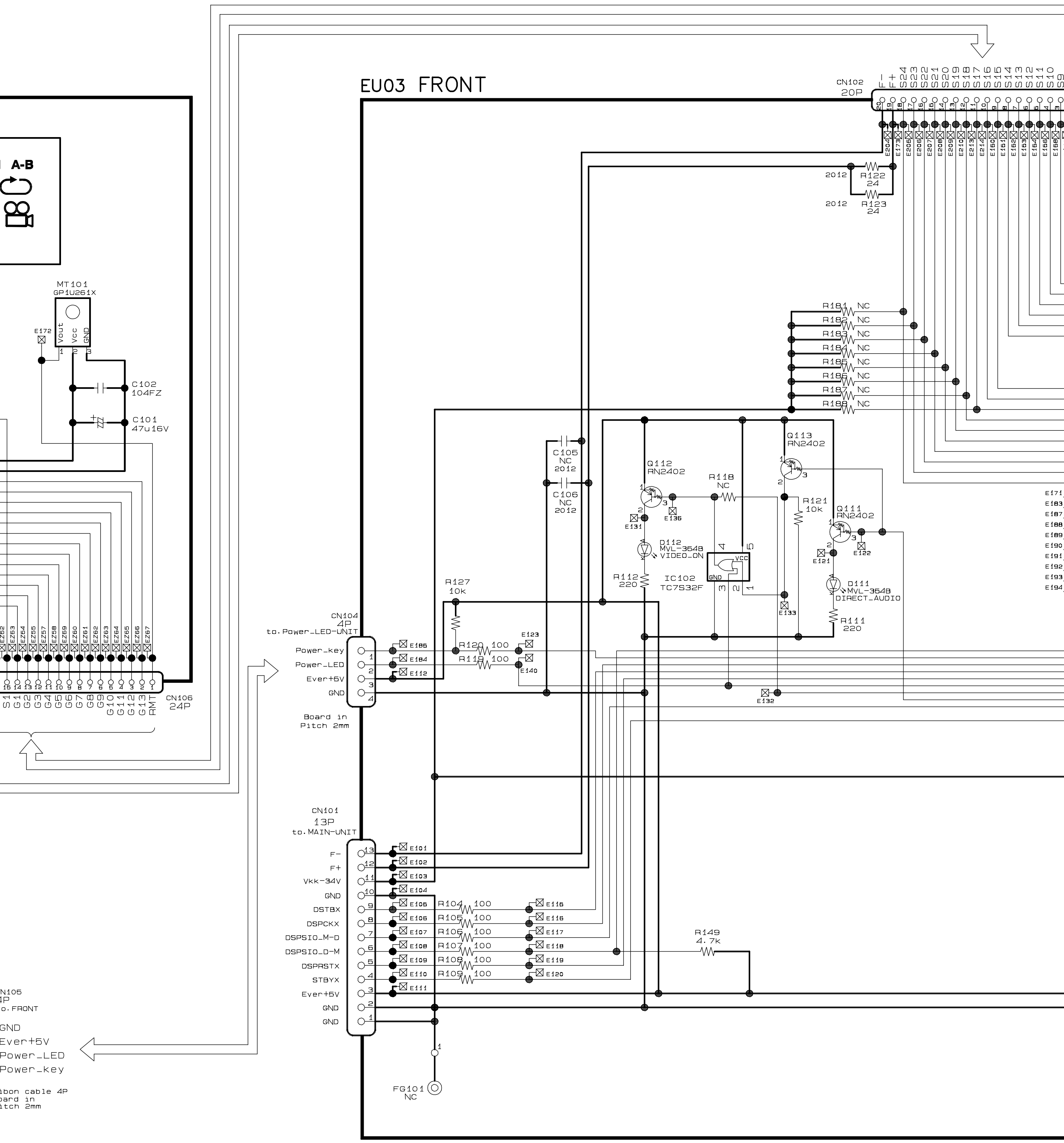
1 2 3 4

A B C D E F G

5-2. Front, Display, Power Switch Circuit Diagram


EU19 DISPLAY
A101
20U47100SAN
FL-DISPLAY-PANNEL
HDCD
DVD-AUDIO
SVCDVD
DISC
TITLE
GROUP
CHP
TRK
TOTAL
REMAIN
MEMORY
RANDOM
A-B
F-1
F-2
1G
2G
3G
4G
5G
6G
7G
8G
9G
10G
11G
12G
13G
NC
P24
P23
P22
P21
P20
P19
P18
P17
P16
P15
P14
P13
P12
P11
P10
P9
P8
P7
P6
P5
P4
P3
P2
P1
F+1
F+2
EZ18
EZ19
EZ20
EZ21
EZ22
EZ24
EZ26
E172
EZ23
EZ25
EZ27
EZ28
EZ29
EZ30
EZ31
EZ32
EZ33
EZ34
EZ35
EZ36
EZ37
EZ38
EZ39
EZ40
EZ41
EZ42
EZ43
EZ44
EZ45
EZ46
EZ47
EZ48
EZ49
EZ50
EZ51
EZ52
EZ53
EZ54
EZ55
EZ57
CN107
20P
F-
F+
S24
S23
S22
S21
S20
S19
S18
S17
S16
S15
S14
S13
S12
S11
S10
S9
S8
S7
E+5V
GND
S6
GND
S5
GND
S4
S3
S2
S1
G1
G2
G3
G4


EU04 POWER SWITCH
Q107
RN2402
Q106
NC
EZ07
EZ06
EZ08
EZ05
R136
NC
R134
NC
R133
NC
R132
220
R131
NC
R135
0
D106
SLR-325VC
S113
SKQNAB
POWER
EZ01
EZ02
EZ03
EZ04
CN105
4P
to.FRONT
GND
Ever+5V
Power_L
Power_k
Ribon cable
Board in
Pitch 2mm


EU03 FRONT
CN102
20P
F−
F+
S24 S23 S22 S21 S20 S19 S18 S17 S16 S15 S14 S13 S12 S11 S10 S9
2012
R122
24
2012
R123
24
A-B
MT101
GP1U261X
Vout
Vcc
GND
E172
C102
104FZ
C101
47u16V
R181 NC
R182 NC
R183 NC
R184 NC
R185 NC
R186 NC
R187 NC
R188 NC
Q113
RN2402
Q112
RN2402
R118
NC
R121
10k
Q111
RN2402
C105
NC
2012
C106
NC
2012
E136
E131
E122
E121
D112
MVL-354B
VIDEO_ON
D111
MVL-354B
DIRECT_AUDIO
R112
220
IC102
TC7S32F
VCC
GND
E133
R111
220
R127
10k
CN104
4P
to.Power_LED-UNIT
Power_key
Power_LED
Ever+5V
GND
E185
E184
E112
R120 100
R119 100
E123
E140
E132
Board in
Pitch 2mm
S1 G1 G2 G3 G4 G5 G6 G7 G8 G9 G10 G11 G12 G13 RMT
CN106
24P
CN101
13P
to.MAIN-UNIT
F−
F+
Vkk-34V
GND
DSTBX
DSPCKX
DSPSIO_M-D
DSPSIO_D-M
DSPRSTX
STBYX
Ever+5V
GND
GND
E101
E102
E103
E104
E105
E106
E107
E108
E109
E110
E111
R104 100
R105 100
R106 100
R107 100
R108 100
R109 100
E115
E116
E117
E118
E119
E120
R149
4.7k
FG101
NC
CN105
4P
to.FRONT
GND
Ever+5V
Power_LED
Power_key
Ribbon cable 4P
Board in
Pitch 2mm

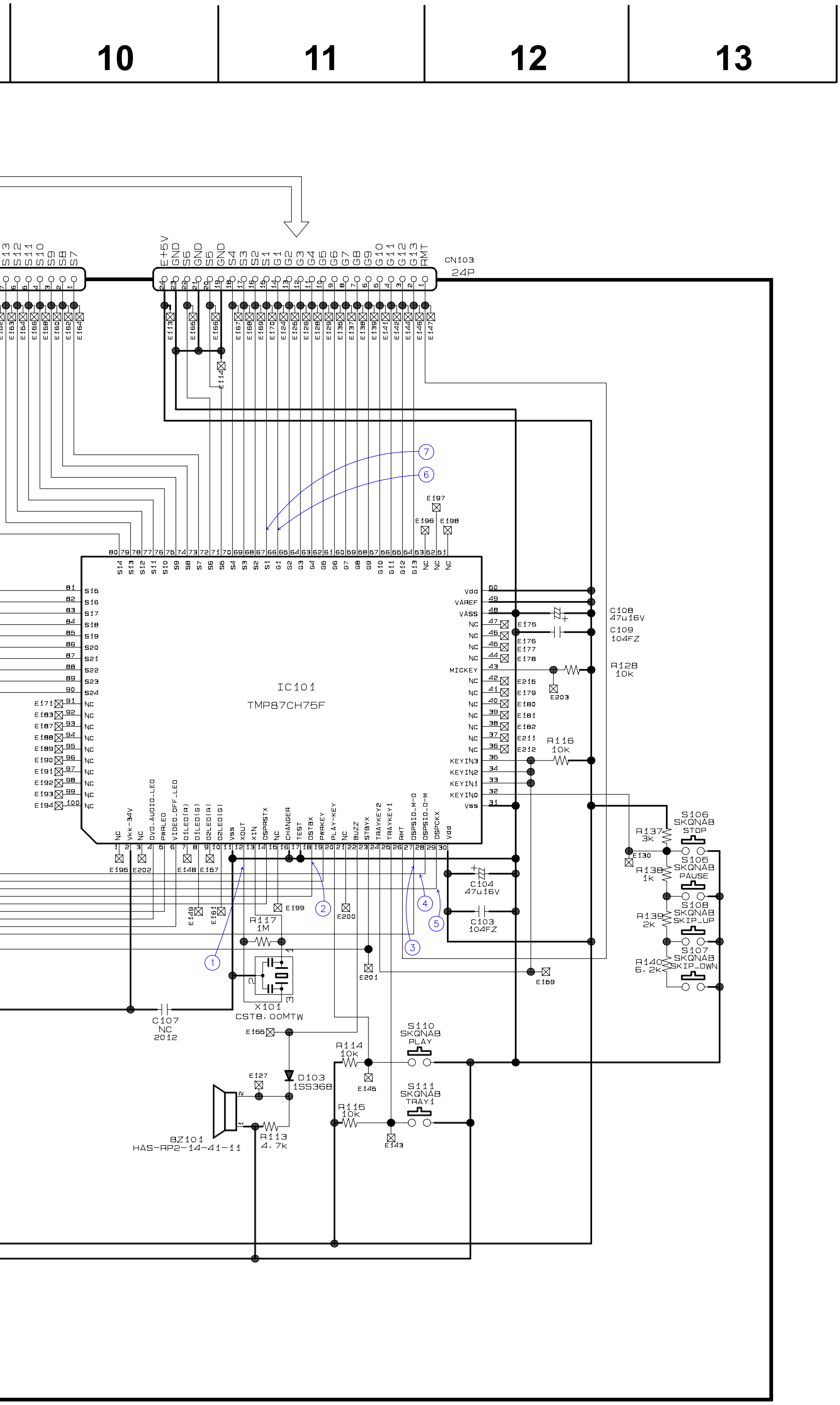
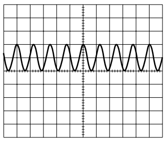

10
11
12
13
CN103
24P
E+5V
GND
S6
S5
S4
S3
S2
S1
G1
G2
G3
G4
G5
G6
G7
G8
G9
G10
G11
G12
G13
RMT
S13
S12
S11
S10
S9
S8
S7
IC101
TMP87CH75F
Vdd
VAREF
VASS
MICKEY
KEYIN3
KEYIN2
KEYIN1
KEYIN0
Vss
NC
Vkk-34V
DVD_AUDIO_LED
PWRLED
VIDEO_OFF_LED
D1LED(R)
D1LED(G)
D2LED(R)
D2LED(G)
XOUT
XIN
DSPRSTX
CHANGER
TEST
DSTBX
PWRKEY
PLAY-KEY
BUZZ
STBYX
TRAYKEY2
TRAYKEY1
DSPSIO_M-D
DSPSIO_D-M
DSPCKX
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
S24
C108
47u16V
C109
104FZ
R128
10k
R116
10k
E203
R137
3K
S106
SKQNAB
STOP
R138
1k
S105
SKQNAB
PAUSE
R139
2K
S108
SKQNAB
SKIP_UP
R140
6.2K
S107
SKQNAB
SKIP_DWN
E130
C104
47u16V
C103
104FZ
R117
1M
X101
CST8.00MTW
C107
NC
2012
E199
E200
E201
E169
E155
D103
1SS368
E127
BZ101
HAS-RP2-14-41-11
R113
4.7k
R114
10k
E145
S110
SKQNAB
PLAY
R115
10k
S111
SKQNAB
TRAY1
E143
E196
E197
E198
①
②
③
④
⑤
⑥
⑦

Fig. 3-5-3

Front, Display, Power Switch Circuit Diagram

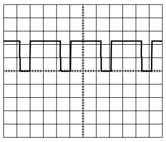
① IC101, Pin ⑫ E-10



X-OUT

V: 2 V/div
H: 100 ns/div

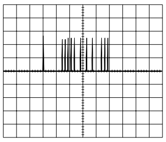
② IC101, Pin ⑱ E-11



DSTBX

V: 2 V/div
H: 10 ms/div

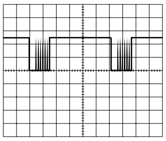
③ IC101, Pin ㉗ E-11



DSPSIO
M-D

V: 2 V/div
H: 1 ms/div

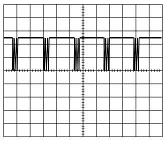
④ IC101, Pin ㉘ E-11



DSPSIO
D-M

V: 2 V/div
H: 5 ms/div

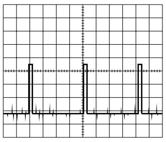
⑤ IC101, Pin ㉙ E-11



DSPCKX

V: 2 V/div
H: 100 µs/div

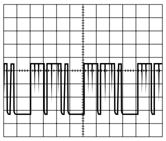
⑥ IC101, Pin (66) C-11



G1

V: 10 V/div
H: 500 µs/div

⑦ IC101, Pin (67) C-11



S1

V: 10 V/div
H: 500 µs/div

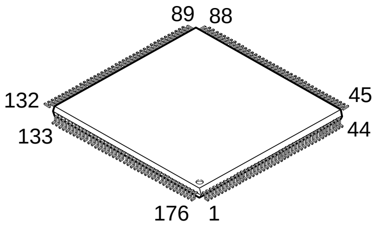
Fig. 3-5-4

Part No.	Location
A101	B1
BZ101	F10
C101	C5
C102	C5
C103	E12
C104	E12
C105	C7
C106	D7
C107	E10
C108	C12
C109	C12
CN101	E6
CN102	A9
CN103	A12
CN104	D6
CN105	F4
CN106	E5
CN109	E2
D103	F11
D106	G3
D111	D9
D112	D8
E101	F6
E102	F6
E103	F6
E104	F6
E105	F6
E107	F6
E108	F6
E109	F6
E110	F6
E111	F6
E112	E6
E113	B10
E114	B11
E115	F7
E116	F7
E117	F7
E118	F7
E119	F7
E120	F7
E121	D8
E122	D9
E123	D7
E124	B11
E125	B11
E126	B11
E127	F11
E128	B11
E129	B11
E130	D13
E131	D7
E132	E8
E133	D8
E136	D8
E136	B11
E137	B11
E138	B11
E139	B11
E140	E7
E141	B11
E142	B11
E144	B11
E145	F11
E146	B11
E148	D10
E149	E10
E150	B9
E151	B9
E152	B9
E153	B9
E154	B10
E155	E11
E156	B10
E157	D10
E158	B10
E160	B10
E161	E10
E162	B10
E164	B10
E165	B10
E166	B10
E167	B11
E168	B11
E169	B11
E169	E12
E170	B11
E171	D10
E172	C4
E173	B9
E175	C12
E176	C12
E177	C12
E178	C12
E179	D12
E180	D12
E181	D12
E182	D12
E183	D10
E184	E6
E185	D6
E187	D10
E188	D10
E189	D10
E190	D10
E191	D10
E192	D10
E193	D10
E194	D10
E195	D10
E196	C12
E197	C12
E198	C12
E199	E11
E200	E11
E201	E11
E202	D10
E203	D12
E204	B9
E205	B9
E206	B9
E207	B9
E208	B9
E209	B9
E210	B9
E211	D12
E212	D12
E213	B9
E214	B9
E215	D12
EZ01	G4
EZ02	G4
EZ03	G4
EZ04	G4
EZ05	G3
EZ06	F3
EZ07	F3
EZ08	G2
EZ18	C2
EZ19	C2
EZ20	C2
EZ21	C2
EZ22	C2
EZ23	D2
EZ24	C2
EZ25	D2
EZ26	C2
EZ27	D2
EZ28	D2
EZ29	D3
EZ30	D3
EZ31	D3
EZ32	D3
EZ33	D3
EZ34	D3
EZ35	D3
EZ36	D3
EZ37	D3
EZ38	D3
EZ39	D3
EZ40	D3
EZ41	D3
EZ42	D3
EZ43	D3
EZ44	D3
EZ45	D4
EZ46	D4
EZ47	D4
EZ48	D4
EZ49	D4
EZ50	D4
EZ51	D4
EZ52	D4
EZ53	D4
EZ54	D4
EZ55	D4
EZ57	D4
EZ58	D4
EZ59	D5
EZ60	D5
EZ61	D5
EZ62	D5
EZ63	D5
EZ64	D5
EZ65	D5
EZ66	D5
EZ67	D5
FG101	G6
IC101	D11
IC102	D8
MT101	C5
Q106	F3
Q107	F2
Q111	D9
Q112	D8
Q113	C8
R104	F7
R105	F7
R106	F7
R107	F7
R108	F7
R109	F7
R111	D9
R112	D7
R113	F11
R114	E11
R115	F11
R116	D12
R117	E11
R118	D8
R119	E7
R120	D7
R121	D8
R122	B9
R123	B9
R127	D7
R128	C12
R131	F3
R132	F3
R133	F3
R134	F2
R135	G2
R136	F2
R137	D13
R138	E13
R139	E13
R140	E13
R143	F11
R149	F8
R181	C9
R182	C9
R183	C9
R184	C9
R185	C9
R186	C9
R187	C9
R188	C9
S105	D13
S106	D13
S107	E13
S108	E13
S110	E11
S111	F11
S113	G4
X101	E11

5-3. Main Circuit Diagram

5-3-1. Main ICs Information

TC9489F
ZR36735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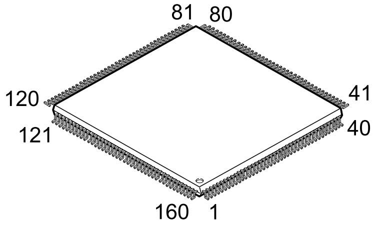
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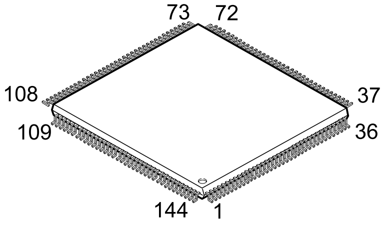
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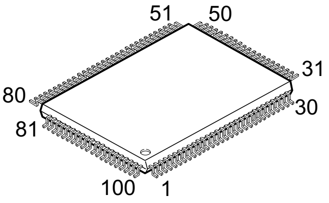
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ADV7192KST
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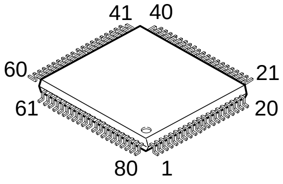
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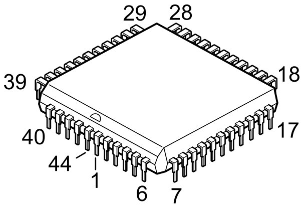
gmAFMC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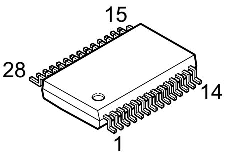
AD1853JRSRL



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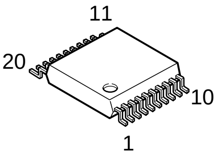

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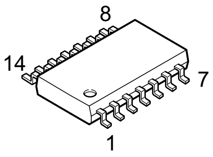

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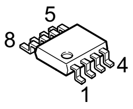


Main ICs Function

Table 3-5-1

Ref. No.	IC Name	Function	Detail
IC601	S24C04BFJ-TB	EE-PROM	Setup default, memorization of specification setting.
IC006	ADV7192	Video Encorder	Built-in D/A converter. Encodes digital video signal to analog video signal of NTSC/PAL system.
IC301	ZR36735	AV Decorder	Decryption, MPEG-2 Decode, Audio Decode, Sub Picture Decode, OSD.
IC401	TC9489F	SERVO & Data Processor	Performs servo control of DVD or CD, and performs demodulation and correction of RF signal.
IC502	TA1313F	RF Signal processing IC	Equalizes of playback RF signal and generates error detection signal required for each servo operation.
IC503	KA3032	5-CH Motor Driver	5ch driver for motor driving.
IC604	TMP94CS40AF	Main Micro Processor	Performs system control for all circuits.
IC202	TC203G08F0103	Track Buffer	Rate control and Buffer control.
IC606	MBM29F800TB-55	Flash ROM	Memorization for firmware.

Table 3-5-2 AD1853JRSRL (1/2)

Pin No.	Name	Function
1	DGND	Digital Ground.
2	MCLK	Master Clock Input. Connect to an external clock source.
3	CLATCH	Latch input for control data. This input is rising-edge sensitive.
4	CCLK	Control clock input for control data. Control input data must be valid on the rising edge of CCLK. CCLK may be continuous or gated.
5	CDATA	Serial control input, MSB first, containing 16 bits of unsigned data. Used for specifying control information and channel-specific attenuation.
6	INT4x	Assert HI to select interpolation ration of 4x, for use with double-speed inputs. Assert LO to select 8x interpolation ratio.
7	INT2x	Assert HI to select interpolation ratio of 2x, for quad-speed inputs. Assert LO to select 8x interpolation ratio.
8	ZEROR	Right Channel Zero Flag Output. This pin goes HI when Right Channel has no signal input for more than 1024 LR Clock Cycles.
9	DEEMP	De-Emphasis. Digital de-emphasis is enabled when this input signal is HI.
10	IREF	Connection point for external bias resistor. Voltage held at V_{REF}.
11	AGND	Analog Ground.
12	OUTL+	Left Channel Positive line level analog output.
13	OUTL–	Left Channel Negative line level analog output.
14	FILTR	Voltage Reference Filter Capacitor Connection.
15	FCR	Filter cap return pin for cap connected to FILTB (Pin 19).
16	OUTR–	Right Channel Negative line level analog output.
17	OUTR+	Right Channel Positive line level analog output.
18	AVDD	Analog Power Supply. Connect to analog +5V supply.
19	FILTB	Filter Capacitor connection,
20	IDPM1	Input serial data port mode control one. With IDPM0, defines one of four serial modes.

Table 3-5-2 AD1853JRSRL (2/2)

Pin No.	Name	Function
21	IDPM0	Input serial data port mode control zero. With IDPM1, defines one of four serial modes.
22	ZEROL	Left Channel Zero Flag output. This pin goes HI when Left Channel has no signal input for more than 1024 LR Clock Cycles.
23	MUTE	Mute. Assert HI to mute both stereo analog outputs. Deassert LO for normal operation.
24	$\overline{\text{RST}}$	$\overline{\text{Reset}}$. The AD1853 is placed in a reset state when this pin is held LO. The AD1853 is reset on the rising edge of this signal. The serial control port registers are reset to the default values. Connect HI for normal operation.
25	L/$\overline{\text{R}}$CLK	Left/$\overline{\text{Right}}$ clock input for input data. Must run continuously.
26	BCLK	Bit clock input for input data.
27	SDATA	Serial input, MSB first, containing two channels of 16/18/20/24 bit twos-complement data.
28	DVDD	Digital Power Supply Connect to digital +5V supply.

Table 3-5-3 ADV7192KST (1/2)

Pin No.	Name	Function
35 49 52	AGND	Analog Ground
42	ALSB	TTL Address Input. This signal sets up the LSB of the MPU address.
25	$\overline{\text{BLANK}}$	Video Blanking Control Signal. This signal is optional.
36	CLKIN	TTL Clock Input.
37	CLKOUT	Clock Output pin when used with internal PLL.
56	COMP1	Compensation Pin for DACs A, B and C.
45	COMP2	Compensation Pin for DACs D, E and F.
61	$\overline{\text{CSO\_HSO}}$	Dual function $\overline{\text{CSO}}$ or $\overline{\text{HSO}}$ output sync signal at TTL level.
55	DAC A	Composite/*Y*/Y/GREEN Analog Output.
54	DAC B	S-Video Y/*Pb*/U/BLUE Analog Output.
51	DAC C	S-Video C/*Pr*/V/RED Analog Output.
50	DAC D	Composite/*Y*/Y/GREEN Analog Output.
47	DAC E	S-Video Y/*Pb*/U/BLUE Analog Output.
46	DAC F	S-Video C/*Pr*/V/RED Analog Output.
22 33 43 69 80	DGND	Digital Ground
23	$\overline{\text{HSYNC}}$	HSYNC (Modes 1, 2 and 3) Control Signal. This pin may be configured to be an output (Master Mode) or an input (Slave Mode) and accept Sync signals.
3 | 18	P0-P15	8-Bit or 16-Bit 4:2:2 Multiplexed YCrCb Pixel Port. The LSB of the input data is set up on pin P0 (pin number 3).
75 | 78 26 | 31	*Pb 0-Pb9*	Progressive scan input port for Cb data.
63 | 67 70 | 74	*Pr 0-Pr9*	Progressive scan input port for Cr data.
59	PAL_NTSC	Input signal to select PAL or NTSC mode of operation, pin set to Logic 1 selects PAL.
41	SCRESET/ RTC/TR	Multifunctional Input: Real Time Control(RTC) input, Timing Reset input, Subcarrier Reset input.
60	$\overline{\text{RESET}}$	The input resets the on-chip timing generator and sets the ADV7192/93 into default mode.
58	R_{SET1}	A resistor connected from this pin to GND is used to control fullscale amplitudes of the Video Signals from the DAC A, B, C.
44	R_{SET2}	A resistor connected from this pin to GND is used to control fullscale amplitudes of the Video Signals from the DAC D, E, F.
39	SCL	MPU Port Serial Interface Clock Input.
40	SDA	MPU Port Serial Data Input/Output.
32	TTXREQ	Teletext Data Request Output Signal, used to control teletext data transfer.
38 48 53	V_{AA}	Analog Power Supply (+3.3V to +5V).

Table 3-5-3 ADV7192KST (2/2)

Pin No.	Name	Function
21 34 68 79	V_{DD}	Digital Power Supply (+3.3V to +5V).
57	V_{REF}	Voltage Reference Input for DACs or Voltage Reference Output.
62	$\overline{\text{VSO}}$/TTX/ CLAMP	Multifunctional pin. $\overline{\text{VSO}}$ Output Sync Signal at TTL level. Teletext Data Input pin. CLAMP TTL Output Signals can be used to drive external circuitry to enable clamping of all video signals.
24	$\overline{\text{VSYNC}}$	VSYNC control signal. This pin may be configured as an output (Master Mode) or as an input (Slave Mode) and accept VSYNC as a control signal.
11 | 20	*Y 0-Y9*	Progressive scan input for Y data.

Table 3-5-4 gmAFMC

Pin No.	Name	Function
Indicators		
36	/SM_LED	Static Mesh indicator (test purposes only)
37	/AFM_LED	Adaptive Film Mode indicator (test purposes only)
38	/VT_LED	Vertical Temporal indicator (test purposes only)
39	/PON_LED	Power-On indicator (test purposes only)
gmVLX1A-X interface		
7	VS_SEL	VS source mux. control: Low=gmVLX1A-X VS input source in normal mode high=gmVLX1A-X GIN0 output in ITU-R-BT-656 mode
24	ADDR0	Device base address select in 2-wire protocol
25	ADDR1	Device base address select in 2-wire protocol
26	ADDR2	Device base address select in 2-wire protocol
27	ADDR3	Device base address select in 2-wire protocol
28	ADDR4	Device base address select in 2-wire protocol
29	ADDR5	Device base address select in 2-wire protocol
30	ADDR6	Device base address select in 2-wire protocol
31	AFM_RFF	Adaptive Film Mode Repeat First Field
40	SDO_VLX1	Serial Data Out Interface from gmVLX1A-X
41	SDI_VLX1	Serial Data in Interface to gmVLX1A-X
42	SCK_VLX1	Serial Clock Interface to gmVLX1A-X
43	/SCS_VLX1	Serial Chip Select Interface to gmVLX1A-X
Serial Data		
2	/SCS	Host Interface Chip Select
3	SCK	Host Interface Serial Clock Input
4	SDI	Host Interface Serial Data Input
5	SDO	Host Interface Data Output
11	RXD	Serial port data input (test purposes only)
13	TXD	Serial port data output (test purposes only)
Inputs		
8	MOD1	Communications Protocol Mode Select
9	MOD2	Communications Protocol Mode Select
10	RST	Reset
14	VS	VS input
15	CLK	Tied to /SCS or SCLK
20	XTAL2	Crystal input 2
21	XTAL1	Crystal input 1
Power		
35 44	Vcc	+5V DC power
22	GND	Ground

Note: pins 1, 6, 12, 16, 17, 18, 19, 23, 32, 33, 34 are not connected.

Table 3-5-5 gmCP2 (1/3)

Pin No.	Name	Function
1	No connect	No connection
2	No connect	No connection
3	RESERVED	Must be left open or connected to ground
4	No connect	No connection
5	VCC	3.3V
6	VCC	3.3V
7	Y_RED9	Input Y (9)
8	Y_RED8	Input Y (8)
9	Y_RED7	Input Y (7)
10	Y_RED6	Input Y (6)
11	Y_RED5	Input Y (5)
12	Y_RED4	Input Y (4)
13	Y_RED3	Input Y (3)
14	Y_RED2	Input Y (2)
15	GND	Gnd
16	GND	Gnd
17	Y_RED1	Input Y (1)
18	Y_RED0	Input Y (0)
19	U_BLU9	Input Cb (9)
20	U_BLU8	Input Cb (8)
21	U_BLU7	Input Cb (7)
22	U_BLU6	Input Cb (6)
23	U_BLU5	Input Cb (5)
24	VCC	3.3V
25	VCC	3.3V
26	U_BLU4	Input Cb (4)
27	U_BLU3	Input Cb (3)
28	U_BLU2	Input Cb (2)
29	U_BLU1	Input Cb (1)
30	U_BLU0	Input Cb (0)
31	V_GRN9	Input Cr (9)
32	V_GRN8	Input Cr (8)
33	V_GRN7	Input Cr (7)
34	No connect	No connection
35	No connect	No connection
36	V_GRN6	Input Cr (6)
37	V_GRN5	Input Cr (5)
38	V_GRN4	Input Cr (4)
39	V_GRN3	Input Cr (3)
40	GND	Gnd
41	V_GRN2	Input Cr (2)
42	V_GRN1	Input Cr (1)
43	V_GRN0	Input Cr (0)
44	SYNC	Output Composite Sync
45	VCC	3.3V
46	BLANKn	Output Blank
47	DUGRN0	Output Y (0)
48	DUGRN1	Output Y (1)
49	DUGRN2	Output Y (2)
50	GND	Gnd

Table 3-5-5 gmCP2 (2/3)

Pin No.	Name	Function
51	DUGRN3	Output Y (3)
52	VCC	3.3V
53	VCC	3.3V
54	HSYCN	Input H Sync
55	CLK	Input Clock
56	VSYNC	Input V Sync
57	GND	Gnd
58	GND	Gnd
59	DUGRN4	Output Y (4)
60	DUGRN5	Output Y (5)
61	VCC	3.3V
62	DUGRN6	Output Y (6)
63	DUGRN7	Output Y (7)
64	DUGRN8	Output Y (8)
65	DUGRN9	Output Y (9)
66	GND	Gnd
67	DVBLU0	Output Cb (0)
68	DVBLU1	Output Cb (1)
69	DVBLU2	Output Cb (2)
70	DVBLU3	Output Cb (3)
71	VCC	3.3V
72	DVBLU4	Output Cb (4)
73	DVBLU5	Output Cb (5)
74	No connect	No connection
75	VCC	3.3V
76	No connect	No connection
77	No connect	No connection
78	DVBLU6	Output Cb (6)
79	DVBLU7	Output Cb (7)
80	DVBLU8	Output Cb (8)
81	DVBLU9	Output Cb (9)
82	DYRED0	Output Cr (0)
83	DYRED1	Output Cr (1)
84	GND	Gnd
85	GND	Gnd
86	DYRED2	Output Cr (2)
87	DYRED3	Output Cr (3)
88	DYRED4	Output Cr (4)
89	DYRED5	Output Cr (5)
90	DYRED6	Output Cr (6)
91	DYRED7	Output Cr (7)
92	DYRED8	Output Cr (8)
93	VCC	3.3V
94	VCC	3.3V
95	DYRED9	Output Cr (9)
96	SCL	Input I2C serial clock
97	SDIO	Input/Output serial Data for I2C Interface
98	HSYNC_OP	Output Separate H Sync
99	VSYNC_OP	Output Separate V Sync
100	No connect	No connection

Table 3-5-5 gmCP2 (3/3)

Pin No.	Name	Function
101	No connect	No connection
102	I2CADDA4	I2C Address Selection (Bit 4)
103	GND	Gnd
104	GND	Gnd
105	No connect	No connection
106	No connect	No connection
107	No connect	No connection
108	No connect	No connection
109	No connect	No connection
110	No connect	No connection
111	No connect	No connection
112	No connect	No connection
113	TEST_2	No connection
114	TEST_1	No connection
115	VCC	3.3V
116	I2CADDA3	I2C Address Selection (Bit 3)
117	No connect	No connection
118	No connect	No connection
119	No connect	No connection
120	No connect	No connection
121	No connect	No connection
122	HARD_RESETn	Input Hard Reset
123	VCC	3.3V
124	No connect	No connection
125	No connect	No connection
126	DEN	Input Data Enable
127	GND	Gnd
128	No connect	No connection
129	GND	Gnd
130	No connect	No connection
131	No connect	No connection
132	No connect	No connection
133	No connect	No connection
134	VCC	3.3V
135	No connect	No connection
136	No connect	No connection
137	No connect	No connection
138	No connect	No connection
139	GND	Gnd
140	No connect	No connection
141	No connect	No connection
142	No connect	No connection
143	No connect	No connection
144	No connect	No connection

Table 3-5-6 gmVLX1A-X (1/3)

Pin No.	Name	Function
VIDEO INPUT INTERFACE		
157	IPCLK	Input clock (rising edge triggered)
135	CREF	Clock Reference: 1 = valid data, 0 = invalid data [default]
134	HREF	Horizontal Active Video: 1 = active video, 0 = blanking [default]
133	HS	Horizontal Sync: 1 = sync [default]
136	VS	Vertical Sync: 1 = sync [default]
132	ODD	Current input field type: 1 = odd, 0 = even [default]
145	Y_RIN0	Current field Y/Red input (unsigned) LSB
146	Y_RIN1	Current field Y/Red input (unsigned)
147	Y_RIN2	Current field Y/Red input (unsigned)
148	Y_RIN3	Current field Y/Red input (unsigned)
149	Y_RIN4	Current field Y/Red input (unsigned)
152	Y_RIN5	Current field Y/Red input (unsigned)
153	Y_RIN6	Current field Y/Red input (unsigned)
154	Y_RIN7	Current field Y/Red input (unsigned) MSB
137	UV_BIN0	Current field UV/Blue input (unsigned) LSB
138	UV_BIN1	Current field UV/Blue input (unsigned)
139	UV_BIN2	Current field UV/Blue input (unsigned)
140	UV_BIN3	Current field UV/Blue input (unsigned)
141	UV_BIN4	Current field UV/Blue input (unsigned)
142	UV_BIN5	Current field UV/Blue input (unsigned)
143	UV_BIN6	Current field UV/Blue input (unsigned)
144	UV_BIN7	Current field UV/Blue input (unsigned) MSB
57	GIN0	Current field Green input (unsigned) LSB or General Purpose Output 1
58	GIN1	Current field Green input (unsigned) or General Purpose Output 2
16	GIN2	Current field Green input (unsigned) or General Purpose Output 3 or Green 0 (LSB) of output data in 10-bit mode
17	GIN3	Current field Green input (unsigned) or General Purpose Output 4 or Green 1 of output data in 10-bit mode
28	GIN4	Current field Green input (unsigned) or Blue 0 (LSB) of output data in 10-bit mode
32	GIN5	Current field Green input (unsigned) or Blue 1 of output data in 10-bit mode
43	GIN6	Current field Green input (unsigned) or Red 0 (LSB) of output data in 10-bit mode
44	GIN7	Current field Green input (unsigned) or Red 1 of output data in 10-bit mode
8	ITU656	ITU-R-BT656 Input (used in stand alone operation)
7	ITU601	1–CCIR601 input, 0–Square pixel input (used in stand alone operation)
129	AFM_RFF	Adaptive Film Mode Repeated First Field: 1 = First field repeated
SGRAM/SDRAM INTERFACE		
72	RAMRAS	External SDRAM/SGRAM row address strobe
68	RAMCAS	External SDRAM/SGRAM column address strobe
67	RAMWE	External SDRAM/SGRAM write enable
73	RAMOE	External SDRAM/SGRAM output enable
74	RAMCS	External SDRAM/SGRAM chip select
70	RAMCLK	External SDRAM/SGRAM clock

Table 3-5-6 gmVLX1A-X (2/3)

Pin No.	Name	Function
65	RAMCKE	External SDRAM/SGRAM clock enable
64	RAMDSF	External SGRAM special function enable
75	RAMADDR 00	External SDRAM/SGRAM address bus
76	RAMADDR 01	External SDRAM/SGRAM address bus
78	RAMADDR 02	External SDRAM/SGRAM address bus
79	RAMADDR 03	External SDRAM/SGRAM address bus
80	RAMADDR 04	External SDRAM/SGRAM address bus
82	RAMADDR 05	External SDRAM/SGRAM address bus
83	RAMADDR 06	External SDRAM/SGRAM address bus
84	RAMADDR 07	External SDRAM/SGRAM address bus
85	RAMADDR 08	External SDRAM/SGRAM address bus
86	RAMADDR 09	External SDRAM/SGRAM address bus
87	RAMADDR 10	External SDRAM/SGRAM address bus
89	RAMADDR 11	External SDRAM/SGRAM address bus
90 | 95	RAMDQ 00-05	External SDRAM/SGRAM bi-directional data bus
97 98	RAMDQ 06-07	External SDRAM/SGRAM bi-directional data bus
102 | 110	RAMDQ 08-16	External SDRAM/SGRAM bi-directional data bus
112 | 114	RAMDQ 17-19	External SDRAM/SGRAM bi-directional data bus
116 | 121	RAMDQ 20-25	External SDRAM/SGRAM bi-directional data bus
123 | 128	RAMDQ 26-31	External SDRAM/SGRAM bi-directional data bus
OUTPUT INTERFACE		
61	OPCLK	Input source for the display clock (rising edge triggered)
50	DCLK	Display clock (output clock)
9	HSYNC	Horizontal sync output: 0 = sync [default]
12	HBLANK	Horizontal blanking output for output data: 0 = blank [default]
13	VSYNC	Vertical sync output for output frame: 0 = sync [default]
14	VBLANK	Vertical blanking output for output frame: 0 = blank [default]
15	DV	Output data valid: 0 = valid [default]
45	Y_RED0	Y/Red output data (unsigned) LSB
46	Y_RED1	Y/Red output data (unsigned)
47	Y_RED2	Y/Red output data (unsigned)
48	Y_RED3	Y/Red output data (unsigned)
53	Y_RED4	Y/Red output data (unsigned)
54	Y_RED5	Y/Red output data (unsigned)
55	Y_RED6	Y/Red output data (unsigned)
56	Y_RED7	Y/Red output data (unsigned) MSB

Table 3-5-6 gmVLX1A-X (3/3)

Pin No.	Name	Function
33	UV_BLUE0	UV/Blue output data (unsigned) LSB
34	UV_BLUE1	UV/Blue output data (unsigned)
35	UV_BLUE2	UV/Blue output data (unsigned)
36	UV_BLUE3	UV/Blue output data (unsigned)
37	UV_BLUE4	UV/Blue output data (unsigned)
38	UV_BLUE5	UV/Blue output data (unsigned)
39	UV_BLUE6	UV/Blue output data (unsigned)
41	UV_BLUE7	UV/Blue output data (unsigned) MSB
19	GREEN0	Green output data (unsigned) LSB
20	GREEN1	Green output data (unsigned)
21	GREEN2	Green output data (unsigned)
22	GREEN3	Green output data (unsigned)
24	GREEN4	Green output data (unsigned)
25	GREEN5	Green output data (unsigned)
26	GREEN6	Green output data (unsigned)
27	GREEN7	Green output data (unsigned) MSB
63	OE	Output Enable
60	OPFSYNC	Output Force Sync: 0 = resynchronize (causes display lock load)
62	DTG_EN	Display Timing Generator Enable
CONTROL INTERFACE		
3	RESET	Power-on reset: 0 = reset
2	RGB	Select RGB Output: 0 = YUV, 1 = RGB
4 | 6	OPSIZE(0.2)	Output format control (used for standalone operation)
1	SCS	Host Interface chip select: 0 = select (not used in I^{2}C protocol)
160	SCLK	Host Interface serial clock input
158	SDI	Host Interface serial data input
159	SDO	Host Interface serial data output
11 18 29 30 42 51 52 66 69 77 88 99 100 111 122 131 150 155	GND	Ground
10 23 31 40 49 59 71 81 96 101 115 130 151 156	VDD	3.3VDC Power connections

Note that some pin functions are marked [default]. This indicates the default polarity of the pin. The polarity may be changed by the user.

Table 3-5-7 PLL1700E-T

Pin No.	Name	Function
1	ML/SR0	Latch Enable for Software Mode/Sampling Rate Selection for Hardware Mode. When MODE pin is LOW, ML is selected. (1)
2	MODE	Mode Control Select. When this pin is HIGH, device is operated in hardware mode using SR0 (pin 1), FS0 (pin 19), and FS1 (pin 20). When this pin is LOW, device is operated in software mode by three-wire interface using ML (pin 1), MD (pin 19) and MC (pin 20).(1)
3	V$_{DD}$	Digital Power Supply. +5V.
4	GND	Digital Ground.
5	XT2	27MHz Crystal. When an external 27MHz clock is applied to XT1 (pin 6), this pin must be connected to GND.
6	XT1	27MHz Oscillator Input/External 27MHz input.
7	GNDP	Ground for PLL.
8	V$_{DDP}$	Power Supply for PLL +5V.
9	RSV	Reserved. Must be left open.
10	MCKO	27MHz Output.
11	MCKO	Inverted 27MHz Output.
12	SCKO1	Fixed 33.8688MHz Clock Output.
13	SCKO4	768/$_S$ Clock Output.
14	SCKO2	256/$_S$ Clock Output.
15	GNDB	Digital Ground for V$_{DC8}$
16	V$_{DC8}$	Digital Power Supply for Clock Output Buffers. +3.3V.
17	SCKO3	3841$_S$ Output. This output has been optimized for the lowest jitter and should be connected to the audio DAC(s).
18	RST	Reset. When this pin is LOW, device is held in reset.(1)
19	MD/FS0	Serial Data Input for Software Mode/ Sampling Frequency Selection for Hardware Mode. When MODE pin is LOW. MD is selected.(1)
20	MC/FS1	Shift Clock Input for Software Mode/ Sampling Frequency Selection for Hardware Mode. When MODE pin is LOW. MC is selected.(1)

Note:(1) Schmitt-trigger input with internal pull-down resistors.

Table 3-5-8 TA1313F (1/2)

Pin No.	Name	Function
1	GNDP	GND terminal
2	LDO2	Drive output 2
3	MD2	Monitor input 2
4	NC	—
5	NC	—
6	VrA	Analog VREF
7	Vrfi	Filter capacity for the reference
8	VrD	Digital VREF
9	Vdd	Power supply terminal
10	DPAC	DPD interchange combination capacity 1
11	DPBD	DPD interchange combination capacity 2
12	DPD1	DPD integral capacity 1
13	DPD2	DPD integral capacity 2
14	SCB	Control line (bit clock)
15	SCL	Control line (latch signal)
16	SCD	Control line (serial data)
17	VRCK	Input of standard clock
18	NC	—
19	NC	—
20	VCKF	Capacity for the VRCK time constant adjustment
21	$V_{CC}P$	Power supply terminal
22	NC	—
23	NC	—
24	NC	—
25	DFIN	DPD filter capacity 1
26	DFHPF	DPD filter capacity 2
27	$V_{CC}S$	Power supply terminal (servo)
28	DFLPF	DPD filter capacity 2 (LPF)
29	NC	—
30	NC	—
31	LVL	Servo addition output
32	NC	—
33	TEO	TE output
34	FEO	FE output
35	NC	—
36	NC	—
37	DFLVL	Defect detection threshold value
38	NC	—
39	NC	—
40	DFTN	DPD defect
41	RPZ	RF ripple output 2
42	RPO	RF ripple output 1
43	RPB	The bottom of the RF ripple
44	RPP	The peak of the RF ripple
45	RFO	Equivalent RF output
46	$V_{CC}R$	Power supply terminal
47	DPDB	Pit depth adjustment
48	TEB	TE balance
49	FEB	FE balance
50	TCC	Time constant adjustment

Table 3-5-8 TA1313F (2/2)

Pin No.	Name	Function
51	—	—
52	$V_{CC}2$	Power supply terminal
53	NC	—
54	NC	—
55	GND2	GND terminal
56	RFDC	DC feedback capacity
57	EQB	Boost adjustment
58	EQF	Frequency adjustment
59	MDI1	Input of monitor
60	LDO1	Drive output
61	P1TN	TE-Input (DVD)
62	P1TP	TE+Input (DVD)
63	P1FN	FE-Input (DVD)
64	P1FP	FE+Input (DVD)
65	LDP1	APC polarity 1
66	GNDR	GND terminal (RF)
67	P1DI	D input (DVD)
68	P1CI	C input (DVD)
69	P1BI	B input (DVD)
70	P1AI	A input (DVD)
71	LDP2	APC polarity 2
72	P2AI	A input (CD)
73	P2BI	B input (CD)
74	P2CI	C input (CD)
75	P2DI	D input (CD)
76	GNDS	GND terminal (Servo)
77	P2FP	FE+Input (CD)
78	P2FN	FE-Input (CD)
79	P2TP	TE+Input (CD)
80	P2TN	TE-Input (CD)

Table 3-5-9 TC9489F (1/4)

Pin No.	Name	Function
1	ASLCN	Data slice negative output
2	ASLCO	Analog data slice output
3	DVSS	DAC-only ground
4	RO	R-channel output signal
5	DVDD	DAC-only power supply
6	DVR	Amp reference signal output
7	LO	L-channel output signal
8	DVSS	DAC-only power ground
9	XVSS	Oscillator-only ground
10	XI	Crystal oscillator input
11	XO	Crystal oscillator output
12	XVDD	Oscillator-only power supply
13	TESM0	Test pin
14	TESM1	Test pin
15	TESM2	Test pin
16	VDD3	3.3V digital power supply
17	VSS3	3.3V digital ground
18	VPFC	Clock PLL block phase/frequency comparator output
19	TEST0	Test mode pin
20	VLPFI	VCO filter input for the clock PLL
21	VLPFO	VCO filter output for the clock PLL
22	VSS3	3.3V digital ground
23	MON0	Test monitor
24	MON1	Test monitor
25	MON2	Test monitor
26	MON3	Test monitor
27	MON4	Test monitor
28	MON5	Test monitor
29	MON6	Test monitor
30	MON7	Test monitor
31	MON8	Test monitor
32	MON9	Test monitor
33	VDD3	3.3V digital power supply
34	NC	—
35	NC	—
36	TEST1	Test mode pin
37	FLGA	General-purpose I/O or flag monitor
38	FLGB	General-purpose I/O or flag monitor
39	VSS3	3.3V digital ground
40	/RST	Reset pin
41	/MA	Microcomputer address enable signal
42	/MRD	Microcomputer data read signal
43	/MWR	Microcomputer data write signal
44	/MCE	Microcomputer chip enable signal
45	/MINT	Microcomputer interrupt signal
46	MD0	Microcomputer data bus
47	MD1	Microcomputer data bus
48	MD2	Microcomputer data bus
49	MD3	Microcomputer data bus
50	MD4	Microcomputer data bus

Table 3-5-9 TC9489F (2/4)

Pin No.	Name	Function
51	MD5	Microcomputer data bus
52	MD6	Microcomputer data bus
53	MD7	Microcomputer data bus
54	VDD5	5V power supply
55	NC	—
56	NC	—
57	SMCK	22M block clock output
58	VMCK	Data output block (signal processing block) clock output
59	VDD3	3.3V digital power supply
60	PD0	DVD/CD data output
61	VSS5	5V ground
62	PD1	DVD/CD data ground
63	PD2	DVD/CD data ground
64	PD3	DVD/CD data ground
65	PD4	DVD/CD data ground
66	VSS3	3.3V digital ground
67	PD5	DVD/CD data output
68	PD6	DVD/CD data output
69	PD7	DVD/CD data output
70	PD8	DVD/CD data output
71	/PSYC	DVD data selector sync signal
72	/PDRQ	DVD data transfer block
73	PDCK	DAD data transfer clock
74	VDD5	5V power supply
75	TESM3	Test pin
76	DIGI	1-bit DAC Digital In Input
77	TESM4	Test pin
78	VDD3	3.3V digital power supply
79	BA0	External RAM address output
80	BA1	External RAM address output
81	BA2	External RAM address output
82	BA3	External RAM address output
83	VSS5	5V ground
84	BA4	External RAM address output
85	BA5	External RAM address output
86	BA6	External RAM address output
87	BA7	External RAM address output
88	BA8	External RAM address output
89	VDD3	3.3V digital power supply
90	/BOE	External RAM/OE signal
91	/BRAS	External RAM/RAS signal
92	/BCAS	External RAM/CAS signal
93	/BWL	External RAM Lower/WE signal
94	/BWU	External RAM Upper/WE signal
95	VDD5	5V power supply
96	BD0	External RAM data input/output
97	BD1	External RAM data input/output
98	BD2	External RAM data input/output
99	BD3	External RAM data input/output
100	BD4	External RAM data input/output

Table 3-5-9 TC9489F (3/4)

Pin No.	Name	Function
101	BD5	External RAM data input/output
102	BD6	External RAM data input/output
103	BD7	External RAM data input/output
104	BD8	External RAM data input/output
105	VSS3	3.3V digital ground
106	BD9	External RAM data input/output
107	BD10	External RAM data input/output
108	BD11	External RAM data input/output
109	BD12	External RAM data input/output
110	VSS5	5V ground
111	BD13	External RAM data input/output
112	BD14	External RAM data input/output
113	BD15	External RAM data input/output
114	NC	—
115	NC	—
116	VDD3	3.3V digital power supply
117	PLCK	PLL block clock input/output
118	TESM5	Test pin
119	TESM6	Test pin
120	TESM7	Test pin
121	TESM8	Test pin
122	VCC3	3.3V digital ground
123	CFC1	VCO frequency control signal
124	CFC2	VCO frequency control signal
125	PPW	Phase comparator offset adjusting voltage output
126	PESV	Phase comparator offset adjusting voltage input
127	PVSS	3.3V PLL block-only ground
128	PESP	Phase comparator offset adjusting signal output
129	PDOP1	DVD/CD phase control signal (positive)
130	PDON1	DVD/CD phase control signal (negative)
131	PDOP2	DVD/CD phase control signal (positive)
132	PDON2	DVD/CD phase control signal (negative)
133	LPFN	Data PLL low-pass filter inverted input
134	LPFO	Data PLL low-pass filter output
135	PVREF	Data PLL block-only reference power supply
136	VCOREF	VCO reference
137	VCOT	VCO automatic adjusting filter output
138	PVDO	3.3V PLL block-only power supply
139	SLCO1	Data slice 6-bit DAC output
140	TESM9	Test pin
141	TEST2	Test mode pin
142	RFCD	CD RF signal input
143	RFDVD	DVD RF signal input
144	AVDD	3.3V analog block-only power supply
145	RFCT	RFRP center voltage input (latched at zero-cross)
146	RFZI	RFRP signal input (latched at zero-cross)
147	TEZI	Tracking error signal input (latched at zero-cross)

Table 3-5-9 TC9489F (4/4)

Pin No.	Name	Function
148	AWIN	Active-wide PLL control signal input
149	AVSS	3.3V analog block-only ground
150	FEI	Focus error signal input
151	TEI	Tracking error signal input
152	RFSB	RF level or subbeam signal summing input
153	RFRP	RFRP signal input
154	AVSS	3.3V analog block-only ground
155	TESM10	Test pin
156	EXTAD	General-purpose external ADC input
157	VREF	Analog block-only reference power supply: 1.65V
158	FOO	Focus EQ output
159	TRO	Tracking EQ output
160	AVDD	3.3V analog block-only power supply
161	AWCTL	Active-wide PLL control output
162	FMO	Feed EQ output
163	DMO	Disc EQ output
164	TEBC	Tracking balance control signal
165	FEBC	Focus balance control signal
166	DPDC	DPD error signal's pit depth adjusting signal
167	EQBC	RF wideband boost adjusting signal
168	ANMON	General-purpose PWM output
169	/DFCT	Black dot detection signal
170	VRCK	RF EQ response control clock
171	VSS3	3.3V digital ground
172	SCD	Head amp serial data
173	SCL	Head amp serial data latch pulse
174	SCB	Head amp serial data clock
175	FGIN	Disc FG signal input (with self-biasing circuit)
176	ASLCP	Data slice positive output

The pin names prefixed by a slash "/" are active-low pins.

Table 3-5-10 ZR36735 (1/5)

Pin No.	Name	Function
Host interface, CD-DSP interface, sub code interface (32 pins)		
137	RESET#	Reset input (active: low). Initializing process of the device will start when deasserting is performed after asserting.
136	STDBY#	Standby input (active: low). When asserting in accordance with RESET#, all the output pins and bidirectional pins enter the float state, and the device is electrically cut off. All internal operations stop and the power consumption can be minimized. At standby, contents of SDRAM and setup parameters are not preserved.
174	IDLE	Display output of Idle, Init or Reset state (active high). After reset , the device enters the active state.
176	HWID	Determines the data bus width of host interface. Only during reset, modification will be available. At low level (GNDP), the host interface of the device is set to 2 or 8 bit width, at high level it is set to 16 bit width.
175	HORD	Determines the bite order of host interface data bus at 16 bit width (HWID is VDDP). Only during reset, modification will be available. Sets the device so that m.s. bite is entered/developed by HD[15:8] at low level (GNDP), and m.s. bite is done by HD[7:0] at high level (VDDP). Connects to GNDP when HWID is at GND level.
2	HTYPE	Determines protocol of the host bus. Only during reset, modification will be available. Sets the device to type A at low level (GNDP) and type B at high level (VDDP).
15,18 19 20,21 22	HD[7:0] (HD[7:4]) (HD[3]) (HD[2:1]) (HD[0])	8 l.s of the host data bus. When connecting HWID input to GNDP, only the 8 l.s. signal is defined as a host data signal. When connecting HWID to VDDP, the connection is used as a 8 l.s. line of 16 bit data bus.
15-18 19 20,21 22	HD[7:4] HVCTL (HD[3]) HVA [1:0] (HD[2:1]) HVCLK(HD[0])	Pin definition in VIP mode (2 bit mode) is as follows: Not used VIP mode control signal. VIP mode address/data bus. VIP mode clock.
7 9, 11, 13	HD[11:8] (HD[11]) (HD[10:8])	When connecting HWID to VDDP, the connection is used as 11:8 data line of 16 bit host data bus.
 6 5 4 3	HD[15:12] CDCLK (HD[12]) CDDAT (HD[13]) CDFRM (HD[14]) CDERR (HD[15])	When connecting HWID to VDDP, the connection is used as 15:12 data line of 16 bit host data bus. When connecting HWID to GNDP, the connection is used as CD-DSP serial input port pin as defined below. CD-DSP bit clock input. CD-DSP data input. CD-DSP LR clock (Frame) input. CD-DSP data error input.
24 | 27	HA[3:0]	Host address input. Inputs address signal which specifies the physical address of the device.
29	HCS#	Host chip select input. Active: low.
28	HWR# (HR/W#)	Host protocol type A (HTYPE=GNDP): HR/W#. The input to determine the direction of host access. Host protocol type B (HTYPE=VDDP): HWR#. Host write input (Active: low).

Table 3-5-10 ZR36735 (2/5)

Pin No.	Name	Function
31	HRD# (HDS#)	Host protocol type A (HTYPE=GNDP): HDS#. Data strobe input (Active: low). Host protocol type B (HTYPE=VDDP): HRD#. Host read in input (Active: low).
33	HRDY	Host ready output (active: high). When transmitting a stream through host bus with this signal , use the signal. And an external pull up resistor is required. Confirm the signal becomes active before transmitting every packet signal, 1 packet signal is CodBurstLen byte length transmission signal. After that, it is available to write the bit stream signals up to the CodBurstLen byte to the device continuously.
34	HIRQ#	Interrupt demand (active: low). Deasserted by host reading the interrupt status resistor of the device. And also deasserted either after host masks the interruption with the interrupt mask resistor of the device or after reset. When HIRQ# is not asserted, 3-state status starts. (External pull up resistor is required.)
36	HACK#	Host acknowledge output (active: Low). When the type A protocol is used, the device asserts the output and informs the completion of read/write cycle. When the signal is not active, 3-state status starts. (External pull up resistor is required.) when the type B protocol is used, the signal works as a Wait output signal. When using a host with high speed (microprocessor), the signal connection is not always required.
GPI/O signal (3 pins)		
147	GPIO	General bidirectional pin to watch/control by ADP micro code. After reset, the pin is defined to use for input. By the ADP command, setting is available.
172	GPSI	General input to be watched by DVP micro code.
171	GPSO	General output to be controlled by DVP micro code. After reset, the pin develops Low.
PLL sigal (6 pins)		
132	GCLK	Clock or X’tal input for main processor.
129	GCLK1	Master clock input for audio. In standard use, the pin should be connected to GCLK.
131	XO	Output to X’tal connected to GCLK. when not using X’tal for GCLK, XO is kept unconnected.
134	PLLCA	PLL capacitor connection pin.
127 130	PLLCFG [1:0]	PLL configuration input. During reset, modification will be available. For general use, both pins should be connected to GNDP.
Analog video port (8 pins)		
114	CVBS/G/Y (DAC A)	At CVBS, the composite video signal is developed. At RGB, G signal is developed. At YUV, Y signal is developed.
117	Y/R/V (DAC B)	At CVBS, Y signal is developed. At RGB, R signal is developed. At YUV, V signal is developed.
118	C/B/U (DAC C)	At CVBS, C signal is developed. At RGB, B signal is developed. At YUV, U signal is developed.

Table 3-5-10 ZR36735 (3/5)

Pin No.	Name	Function
115	CVBS/C (DAC D)	Develops either of CVBS or C signal.
120	RSET	Insert a resistor load for DAC gain adjustment between GNDDAC.
123	VREF	Apply reference voltage for DAC gain adjustment.
110	DACDISABLE	DAC disable input. At high level, DAC output is floated. At low level, normal operation is carried out.
112	COSYNC	Composite sync output. Only when RGB analog output is selected, the pin takes effective. For other case, the pin is fixed to Low.
Digital video port (16 pins)		
98 | 101 103 105 107 108	VID[7:0]	Digital output terminal for luminance and color difference standardized to ITU-T656 specifications.
140	VCLKx2	Main video clock input or output.
89	VCLK	Two-divided VCLKx2 signal. The signal is used as data and sync signal qualifier.
95	HSYNC	Horizontal sync bidirectional signal pin. The polarity and length are programmable.
93	VSYNC	Vertical sync bidirectional signal pin. The polarity and length are programmable.
96	FI	Field identification bidirectional signal pin. The polarity is programmable.
92	CBLANK	Composite blank output. The polarity and blanking area are programmable.
90	VMASTER	Video master/slave selection input. At high level, the video sync of the device enters master mode. (Accordingly, SYNC and clock signals are developed.) At low level, the video sync of the device enters slave mode. (so, the video sync and clock signals are entered.) Only during reset, the modification of the terminal will be available.
91	VDEN#	Video enable input (Active: Low). At active, the device develops VID [7:0] to video data. In case of deasserting, the device enters 3-state of VID[7:0]. (Here, sync and clock signals are kept active.) The input is modified at any time, however, the modification takes effect on the next VCLKx2.
Digital audio port (9 pins)		
144	AMCLK	Audio master clock input/output. The sampling frequency can be selected among 384fs, 256fs, 192fs and 128fs. (programmable)
146	S/PDIF (AOUT[3])	S/PDIF transmitter output. Available to connect to DAC as the 4th audio output (AOUT[3]). After reset, the pin develops low level signal.
149 | 152	AOUT[4, 2:0]	PCM stereo audio serial output for DAC. After reset, the pin develops low level signal.
125	AIN	PCM stereo audio serial input for ADC.
153	ALRCLK	AOUT[4:0] and LR clock output of AIN. The square waveform appears in the sampling frequency. The polarity of LR is programmable.
154	ABCLK	AOUT[4:0] and bit clock output of AIN. AOUT is developed at the rising and falling edges of the clock signal and AIN is latched.

Table 3-5-10 ZR36735 (4/5)

Pin No.	Name	Function
DVD-DSP interface (13 pins)		
159	DVDREQ	DVD-DSP data request output (polarity programmable).
157	DVDVALID	DVD-DSP data effective input (polarity programmable).
156	DVDSOS	DVD-DSP data sector start input (polarity programmable).
161 162 164 166 | 170	DVDDAT [7:0]	DVD-DSP data input bus.
158	DVDSTRB	DVD-DSP data bit strobe (clock) input. Polarity programmable.
155	DVDERR	DVD-DSP error input. Polarity programmable.
SDRAM interface (35 pins)		
65 67 69 71 | 73 75 76 78 79 81 82 84 85 87 88	RAMDAT [15:0]	SDRAM bidirectional data bus.
38 | 40 42 | 45 47 48 50 | 52	RAMADD [11:0]	SDRAM address bus output.
57	RAMRAS#	SDRAM row selection (active: low) output.
58	RAMCAS#	SDRAM column selection (active: low) output.
63	PCLK	SDRAM clock output (same as internal process clock).
61	RAMDQM	SDRAM data masking (active: high) output.
54	RAMCS0#	SDRAM chip select (active: low) output. Lower 2 Mbyte device.
56	RAMCS1#	SDRAM chip select (active: low) output. Lower 2 Mbyte device.
59	RAMWE#	SDRAM write enable (active: low) output.
TEST signal (3 pins).		
138	SCNENBL	Test pin. Connect to GNDP in normal use.
142	TESTMODE	Test pin. Connect to GNDP in normal use.
124	ICEMODE	Test pint Connect to VDDP in normal use.
Power supply signal (51 pins).		
8 37 46 53 62 66 77 83 97 109 141 173	GNDP	GND for 3.3V digital power supply.

Table 3-5-10 ZR36735 (5/5)

Pin No.	Name	Function
1 14 23 35 41 49 55 64 68 74 80 86 94 102 111 139 148 160	VDDP	3.3V digital power supply.
145	GNDP-A2	GND for PLL power supply of 3.3V AMCLK generation.
143	VDDP-A2	PLL power supply for 3.3V AMCLK generation.
12 32 70 104 126 165	GNDC	GND for 2.5V digital power supply.
10 30 60 106 128 163	VDDC	2.5V digital power supply.
135	GNDA	GND for PLL power supply of 2.5V internal clock generation.
133	VDDA	PLL power supply for 2.5V internal clock generation.
116	VDDDAC	Analog power supply for 2.5V video DAC.
113 119 121 122	GNDDAC [D, B, P, S]	GND for analog power supply of 2.5V video DAC.

Table 3-5-11 ZR38601 (1/3)

Pin No.	Name	Function
6 12 17 30 35 45 55 59 67 81 84 93	VCC	Connect power supply of +3.3V ± 5%
70	VCCA	Connect power supply of +3.3V ± 5% (analog power supply for PLL). Connect the power supply with low noise to reduce PLL jitter.
2 8 19 29 36 37 44 53 60 65 71 78 90	GND	Digital ground
68	GNDA	Analog ground (analog power supply for PLL)
63 64	XTI XTO	Crystal oscillation I/O terminals. Connect parallel resonance oscillator and two tuning capacitors for clock signal generation to this terminals. The clock signal generated is supplied to the internal PLL circuit. The clock signal can be input directly to the XTI terminal.
69	FLTCAP	Capacitor connection pin for internal PLL circuit.
62	P/M_	Parallel port/Memory port mode setting pin. At “L”, becomes interface for external memory access and at “H”, interface for parallel data I/O. At “H”, SPI/Z2C interface can not be used , and only host command access via parallel interface can be used.
1 9 10 11 16 20 21 24 25 27 28 31 38 40 43 46 49 75 76 77	A[19:0]	Address bus. Address bus is always active.

Table 3-5-11 ZR38601 (2/3)

Pin No.	Name	Function
7 13 15 22 26 32 33 41 42 47 48 73 74 96 98 100	D[19:4]	Data bus. Pull up one of D4 to D11 pins when connecting no external ROM. Use D[11:4] pins when connecting an external ROM.
50	RD_	Read strobe.
51	WR_	Write strobe.
52	CS_	Chip select. (Refer to the supplement.)
82	RESET_	Reset input. By reset signal, predetermined status and address are performed at first. At power on, the processor must be initialized by asserting for more than 200 fDSP cycle with this pin. VCC and XTI (clock input or crystal oscillator) must satisfy the specified DC and AC characteristics until reading rising edge of the reset signal. And then, to keep the guard time until the normal operation starts, the processor enters idle status for 4,096 clocks.
5	INT_	External interrupt input. Interrupt signal becomes effective when asserted over 4fDSP cycle.
92	WSA/FSA	Word selection of “A” group serial port (for input) or frame sync I/O. Direction and function of the signal is set by WSA, MA parameter of CFG command.
91	SCKA	Clock I/O for “A” group serial port. The direction is set by MA bit of CFG command.
83 85 94	SDA SDE SDF	Data input for serial ports A, E and F.
66	SCKIN	Clock I/O for “B” group serial port. The direction is set by CB bit of CFG command.
95	WSB	Word selection I/O for “B” group serial port. The direction is set by CB bit of CFG command.
97	SCKB	Clock I/O for “B” group serial port. The direction is set by MB bit of CFG command.
80	SDB SPI Z2C_	Data output for serial port B. Host serial interface is determined at reset. SPI interface is selected at pull-up, and Z2C interface at pull-down.
79	SDC Z2CADR0_	Data output for serial port C. 0th bit of Z2C address is determined at reset. The reverse logic of the value set here is set as address.
54	SDC Z2CADR1_	Data output for serial port D. 1st bit of Z2C address is determined at reset. The reverse logic of the value set here is set as address.
99	SDG/ SPFTX	Data output for serial port G or output port for digital audio interface. CFG command determines to use either port. At reset, this pin is also used to determine the polarity of SCK of SPI interface. Normal mode is selected at pull-up, and reverse mode at pull-down.

Table 3-5-12 ZR38601 (3/3)

Pin No.	Name	Function
61	SPFRX	Terminal for digital audio interface input.
14 18 23 56 57 58	GPIO[5:0]	Universal I/O pin.
3	SS_/ Z2CXADR4	Slave select input (SPI). 4th bit of Z2C address is determined at reset.
87	SCK/SCL	Clock input (SPI) or slave select input (Z2C).
34	SO/SDA	Serial data output (SPI) or data (Z2C)
89	SI/ Z2CXADR5	Serial data input (SPI). 5th bit of Z2C address is determined at reset.
86	TCK	ICE interface clock (JTAG).
4	TMS	ICE interface mode selection (JTAG).
39	TDO	ICE interface data output (JTAG).
88	TDI	ICE interface data input (JTAG).
73	CLKOUT	Develops half frequency clock of DSP clock. It is used to confirm whether the device inside is active at debug.

<Supplement>

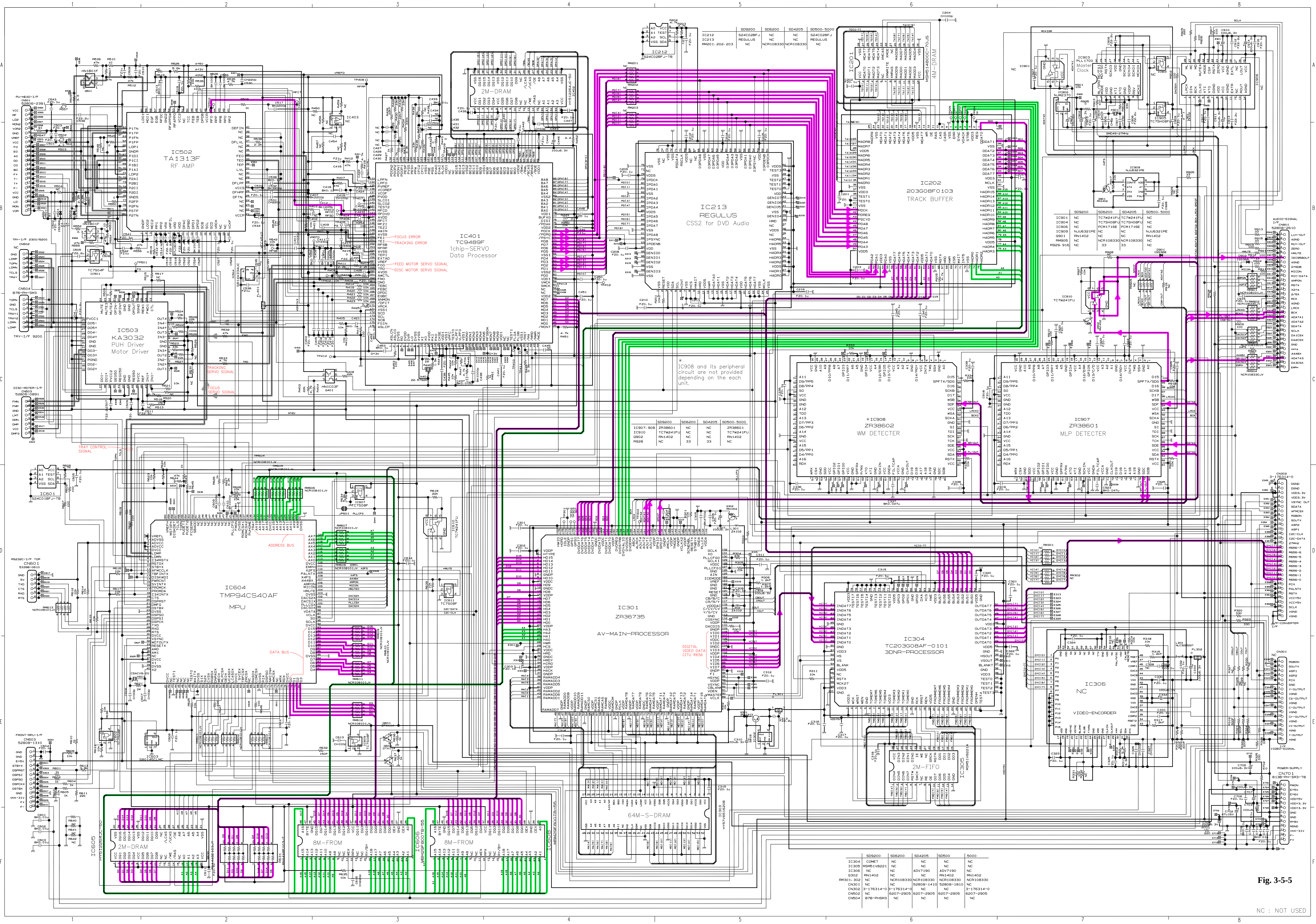
At P/M_=Low

D[19:4]	Bidirectional data bus for external memory access
RD_	Asserted at reading data from external memory.
WR_	Asserted at writing data to external memory.
CS_	Asserted when memory bus is used.

At P/M_=High

D14/RDY	RDY signal that indicates possibility to transfer data of parallel interface. It indicates High when possible to transfer data.
D13C/D_	A signal that indicates kinds of input data of the parallel interface. High at transferring command, and low at transferring data.
D12/ERR	Indicates whether data input in the parallel interface contains error.
D[11:4]/PP[7:0]	Bidirectional data bus of the parallel interface.
RD_	Assert in case of reading data from ZR38601.
WR_	Assert in case of writing data to ZR38601.
CS_	Assert when accessing to ZR38601 with the parallel interface.

5-3-2. Main Circuit Diagram


IC502 TA1313F RF AMP
IC503 KA3032 PUH Driver Motor Driver
IC401 TC9489F 1chip-SERVO Data Processor
2M-DRAM
IC212
IC213 REGULUS CSS2 for DVD Audio
IC201 4M-DRAM
IC202 203G08F0103 TRACK BUFFER
IC901
IC903 PLL1700 Master Clock
IC906
IC909 NJU6321PE
IC910 TC7W241FU
*IC908 ZR38602 WM DETECTER
IC907 ZR38601 MLP DETECTER
IC601 S24C01BFJ-TB
IC604 TMP94CS40AF MPU
ADDRESS BUS
DATA BUS
IC301 ZR36735 AV-MAIN-PROCESSOR
DIGITAL VIDEO DATA (ITU R656)
IC304 TC203G08AF-0101 3DNR-PROCESSOR
IC306 NC VIDEO-ENCORDER
IC305 2M-FIFO
IC303 64M-S-DRAM
IC605 2M-DRAM
IC606 8M-FROM
IC608 8M-FROM
FOCUS ERROR
TRACKING ERROR
FEED MOTOR SERVO SIGNAL
DISC MOTOR SERVO SIGNAL
TRACKING SERVO SIGNAL
FOCUS SERVO SIGNAL
TRAY CONTROL SIGNAL
PU-HEAD-I/F CN501
DISC-MOTER-I/F CN503
RS232C-I/F TOP CN601
FRONT-MPU-I/F CN603
AUDIO-SIGNAL I/F CN901
V-CONVERTER I/F CN302
VIDEO-SIGNAL I/F CN301
POWER-SUPPLY CN701

	SD9200	SD6200	SD4205	SD500・5000
IC212	S24C02BFJ	NC	NC	S24C02BFJ
IC213	REGULUS	NC	NC	REGULUS
RM201.202・203	NC	NCR108330	NCR108330	NC

	SD9200	SD6200	SD4205	SD500・5000
IC901	NC	TC7W241FU	TC7W241FU	NC
IC904	NC	TC7SH08FU	TC7SH08FU	NC
IC906	NC	PCM1716E	PCM1716E	NC
IC909	NJU6321PE	NC	NC	NJU6321PE
Q901	RN1402	NC	NC	RN1402
RM905	NC	NCR108330	NCR108330	NC
R929・916	NC	33	33	NC

* IC908 and its peripheral circuit are not provided depending on the each unit.

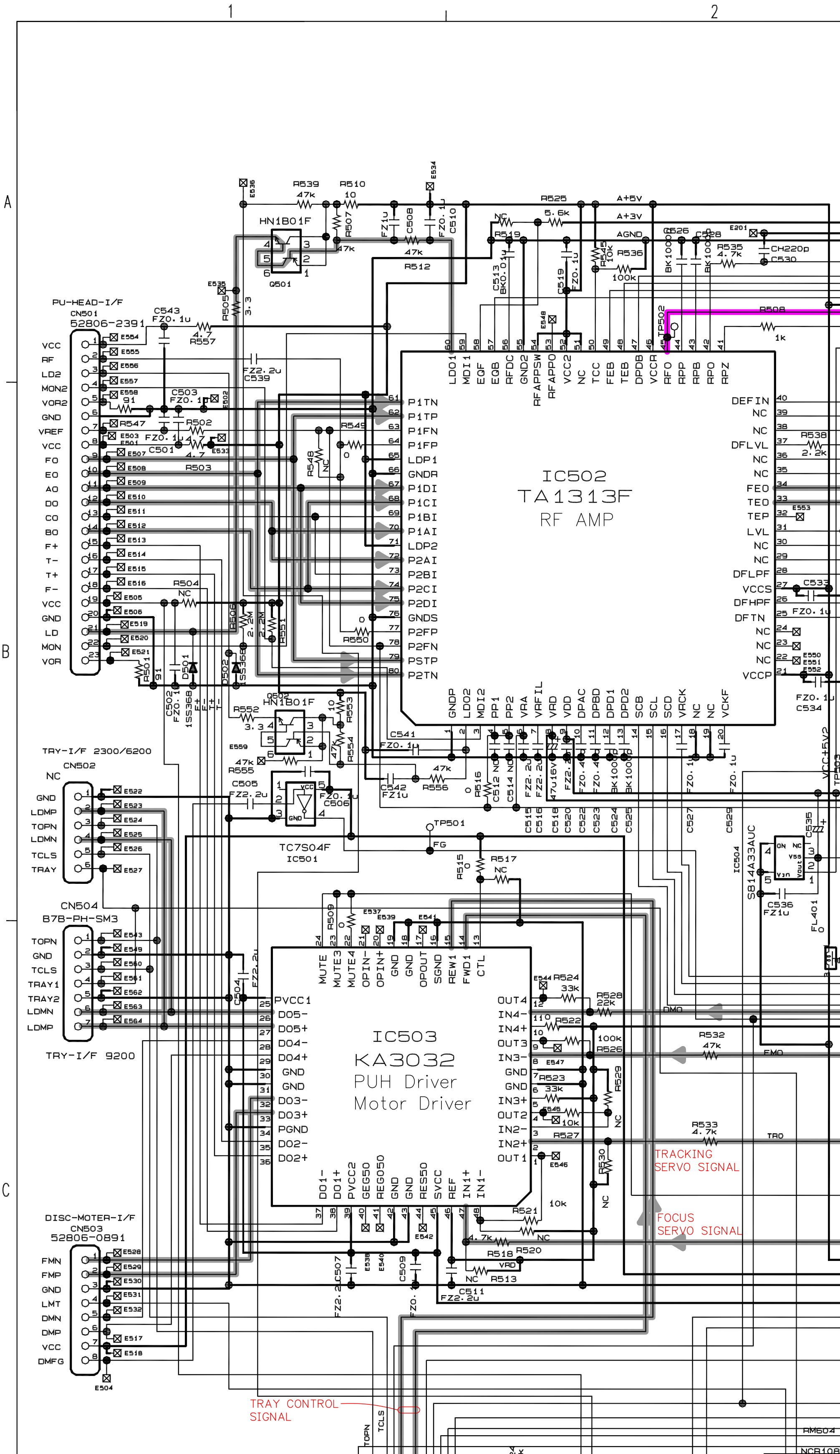
	SD9200	SD6200	SD4205	SD500・5000
IC907・908	ZR38601	NC	NC	ZR38601
IC910	TC7W241FU	NC	NC	TC7W241FU
Q902	RN1402	NC	NC	RN1402
R928	NC	33	33	NC

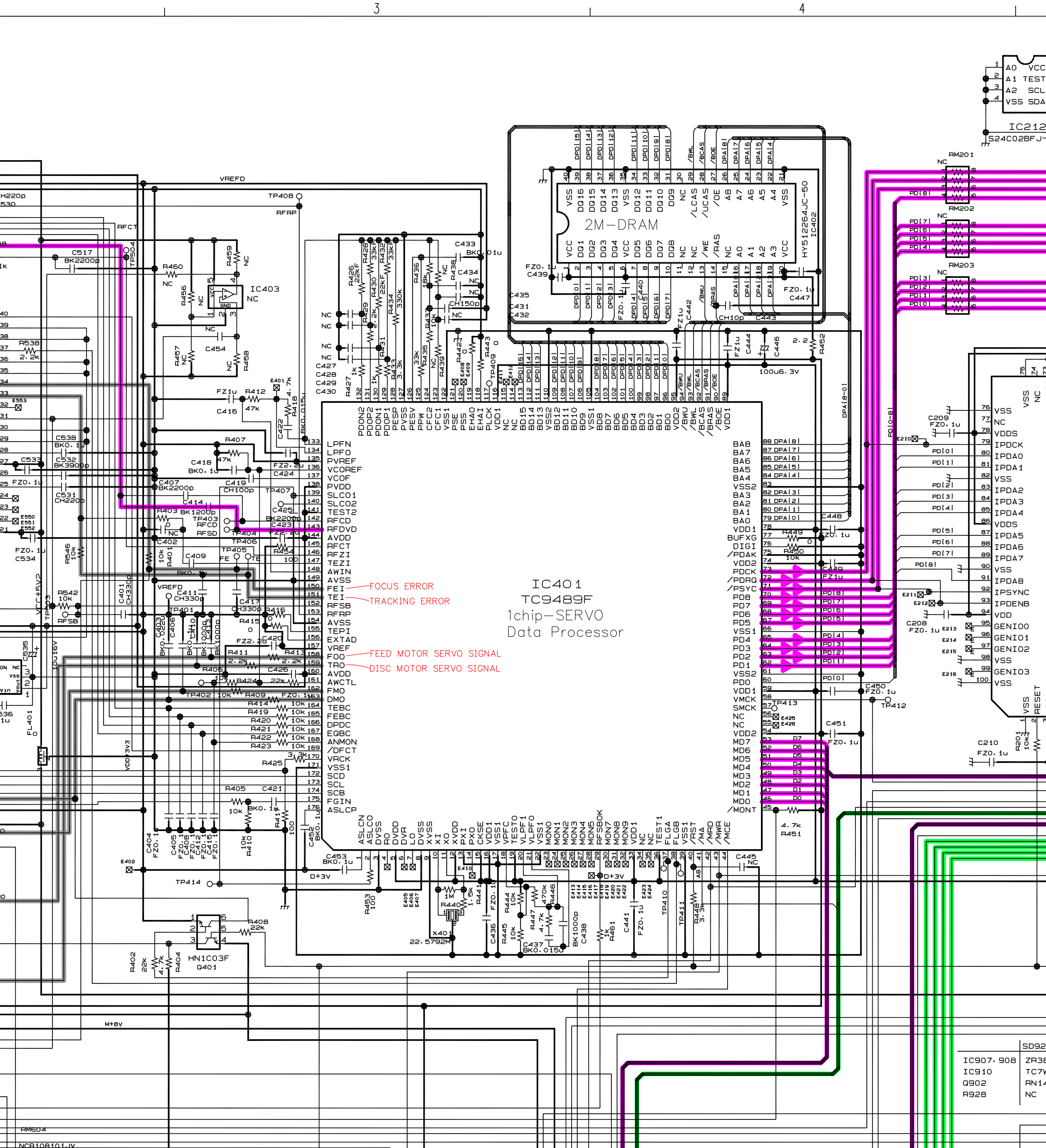
	SD9200	SD6200	SD4205	SD500	5000
IC304	COMET	NC	NC	NC	NC
IC305	MSM51V8221	NC	NC	NC	NC
IC306	NC	NC	ADV7190	ADV7190	NC
Q302	RN1402	NC	NC	RN1402	RN1402
RM301・302	NC	NCR108330	NCR108330	NCR108330	NCR108330
CN301	NC	NC	52808-1410	52808-1810	NC
CN302	3-176314-0	3-176314-0	NC	NC	3-176314-0
CN502	NC	6207-2905	6207-2905	6207-2905	6207-2905
CN504	B7B-PHSM3	NC	NC	NC	NC

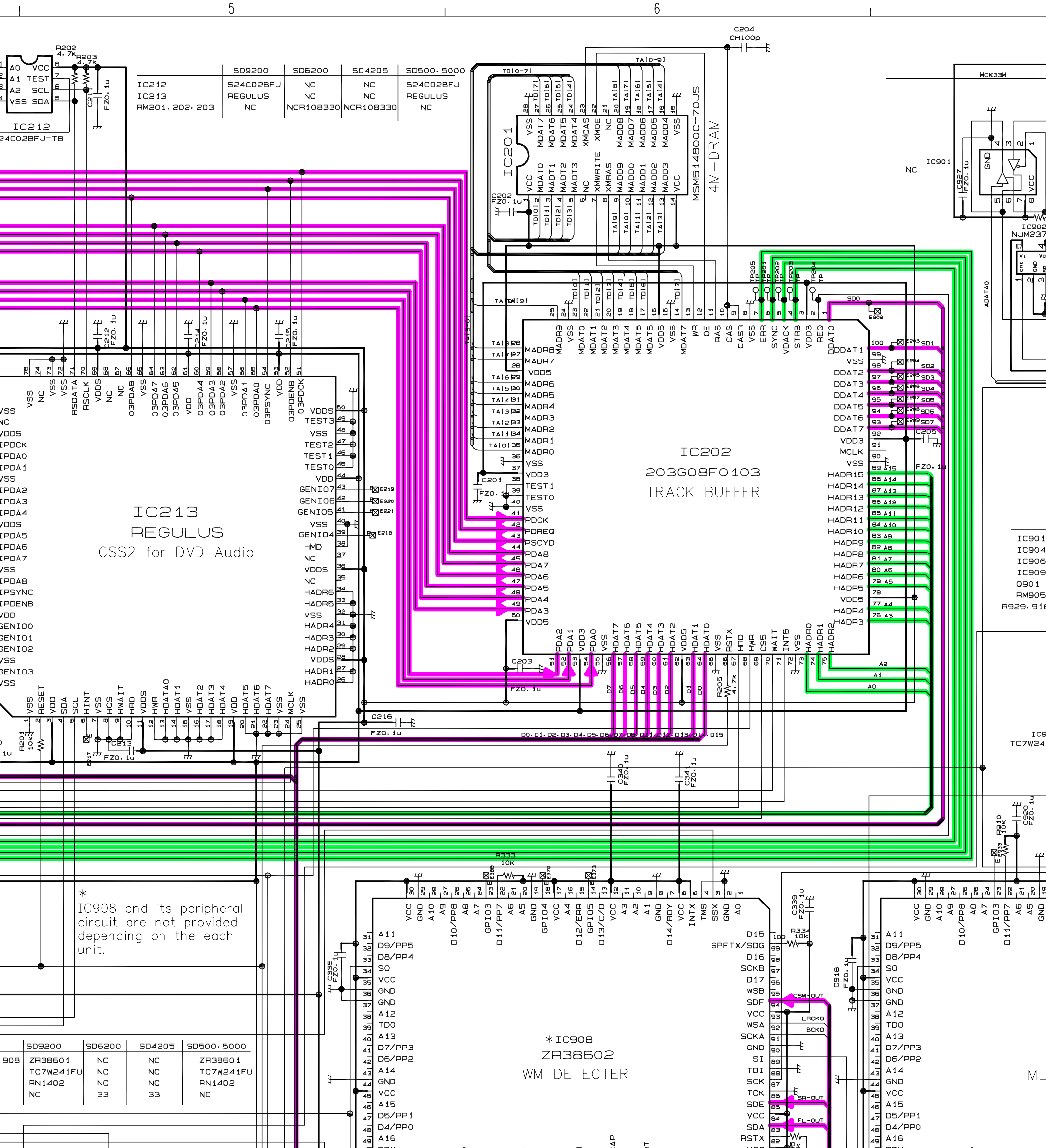
Fig. 3-5-5

NC : NOT USED

5-3-2. Main Circuit Diagram


1
2
A
B
C
PU-HEAD-I/F
CN501
52806-2391
VCC
RF
LD2
MON2
VOR2
GND
VREF
VCC
FO
EO
AO
DO
CO
BO
F+
T-
T+
F-
VCC
GND
LD
MON
VOR
HN1B01F
Q501
R539
47k
R510
10
R507
47k
C508
R512
C510
FZ0.1u
FZ1u
C543
FZ0.1u
R557
4.7
R505
3.3
C539
FZ2.2u
C503
FZ0.1u
R547
91
R502
4.7
C501
FZ0.1u
R503
R504
NC
R506
2.2M
R551
R501
91
D501
1SS368
D502
1SS368
C502
FZ0.1u
R549
R548
NC
R550
R525
5.6k
A+5V
A+3V
AGND
R519
C513
BK0.01u
C519
FZ0.1u
R545
10k
R536
100k
C526
C528
R535
4.7k
C530
CH220p
E201
TP502
R508
1k
IC502
TA1313F
RF AMP
LDO1
MDI1
EQF
EQB
RFDC
GND2
RFAPPSW
RFAPPO
VCC2
NC
TCC
FEB
TEB
DPDB
VCCR
RFO
RPP
RPB
RPO
RPZ
P1TN
P1TP
P1FN
P1FP
LDP1
GNDA
P1DI
P1CI
P1BI
P1AI
LDP2
P2AI
P2BI
P2CI
P2DI
GNDS
P2FP
P2FN
PSTP
P2TN
DEFIN
DFLVL
FEO
TEO
TEP
LVL
DFLPF
VCCS
DFHPF
DFTN
VCCP
R538
2.2k
C533
FZ0.1u
C534
GNDP
LDO2
MDI2
PP1
PP2
VRA
VRFIL
VRD
VDD
DPAC
DPBD
DPD1
DPD2
SCB
SCL
SCD
VRCK
VCKF
C541
R556
47k
C542
FZ1u
R516
C512
C514
C515
C516
C518
C520
C522
C523
C524
C525
C527
C529
47u16V
Q502
HN1B01F
R552
3.3
R555
47k
R553
10
R554
47k
C505
FZ2.2u
C506
FZ0.1u
TC7S04F
IC501
TP501
FG
R515
R517
NC
TRY-I/F 2300/6200
CN502
NC
GND
LDMP
TOPN
LDMN
TCLS
TRAY
CN504
B7B-PH-SM3
TOPN
GND
TCLS
TRAY1
TRAY2
LDMN
LDMP
TRY-I/F 9200
IC503
KA3032
PUH Driver
Motor Driver
MUTE
MUTE3
MUTE4
OPIN-
OPIN+
GND
GND
OPOUT
SGND
REW1
FWD1
CTL
PVCC1
DO5-
DO5+
DO4-
DO4+
GND
GND
DO3-
DO3+
PGND
DO2-
DO2+
OUT4
IN4-
IN4+
OUT3
IN3-
GND
GND
IN3+
OUT2
IN2-
IN2+
OUT1
DO1-
DO1+
PVCC2
GEG50
REG050
GND
GND
RES50
SVCC
REF
IN1+
IN1-
R509
C504
FZ2.2u
R524
33k
R528
22k
R522
100k
R526
R523
33k
R529
NC
R527
10k
R530
NC
R521
10k
R518
4.7k
R520
NC
R513
VRD
C507
FZ2.2u
C509
FZ0.1u
C511
FZ2.2u
R532
47k
R533
4.7k
DMO
FMO
TRO
TRACKING SERVO SIGNAL
FOCUS SERVO SIGNAL
IC504
S814A33AUC
C535
C536
FZ1u
FL401
VCC+5V2
TP503
DISC-MOTER-I/F
CN503
52806-0891
FMN
FMP
GND
LMT
DMN
DMP
VCC
DMFG
E504
TRAY CONTROL SIGNAL
TOPN
TCLS
RM604
NCB108

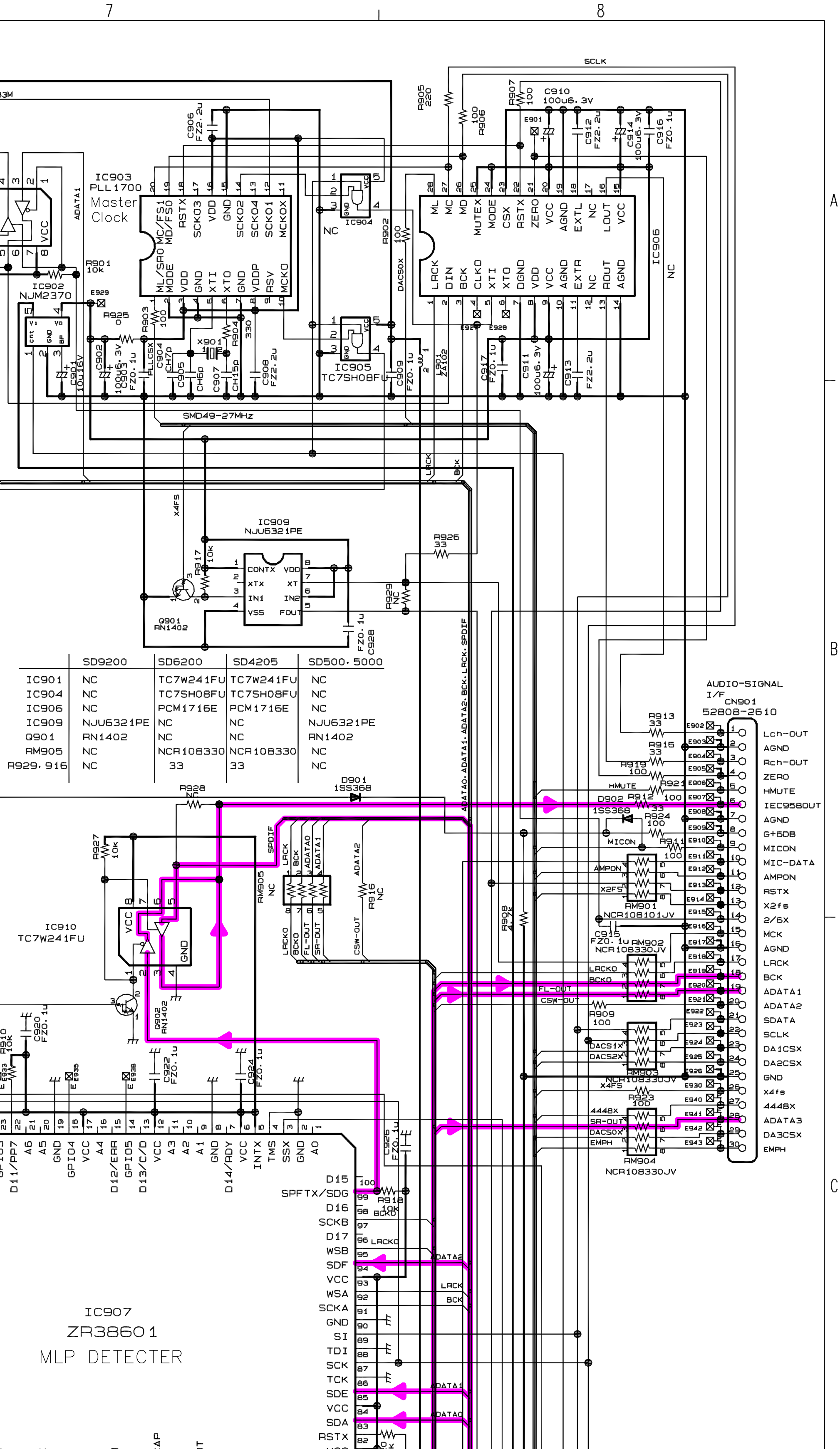

3
4
IC401
TC9489F
1chip-SERVO
Data Processor
FOCUS ERROR
TRACKING ERROR
FEED MOTOR SERVO SIGNAL
DISC MOTOR SERVO SIGNAL
2M-DRAM
HY51264JC-50
IC402
IC403
NC
HN1C03F
Q401
IC212
S24C02BFJ-
X401
22.5792M
VREFD
RFCT
RFRP
TP408
TP504
RM201
RM202
RM203
M+8V
D+3V
VDD+3V3
VCC+5V2
FL401
RM604
NCB10B101JV
IC907, 908
IC910
Q902
R928
SD92
ZR38
TC7W
RN14
NC


5
6
IC212
24C02BFJ-TB
R202 4.7k
R203 4.7k
C211 FZ0.1u
IC213
REGULUS
CSS2 for DVD Audio
IC201
MSM514800C-70JS
4M-DRAM
C204 CH100p
IC202
203G08F0103
TRACK BUFFER
C201
C202 FZ0.1u
C203 FZ0.1u
C205
C212 FZ0.1u
C214 FZ0.1u
C215 FZ0.1u
C216 FZ0.1u
C213 FZ0.1u
C340 FZ0.1u
C341 FZ0.1u
R201 10k
R205 4.7k
R333 10k
R334 10k
C335 FZ0.1u
C339 FZ0.1u
C918 FZ0.1u
C920 FZ0.1u
C927 FZ0.1u
R910 10k
IC901
IC902
NJM237
MCK33M
NC
ADATA0
IC901
IC904
IC906
IC909
Q901
RM905
R929.916
TC7W24
*IC908
ZR38602
WM DETECTER
CSW-OUT
LRCKO
BCKO
SR-OUT
FL-OUT
D0.D1.D2.D3.D4.D5.D6.D7.D8.D11.D12.D13.D14.D15
TD[0-7]
TA[0-9]
SD0
SD1
SD2
SD3
SD4
SD5
SD6
SD7
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
ML

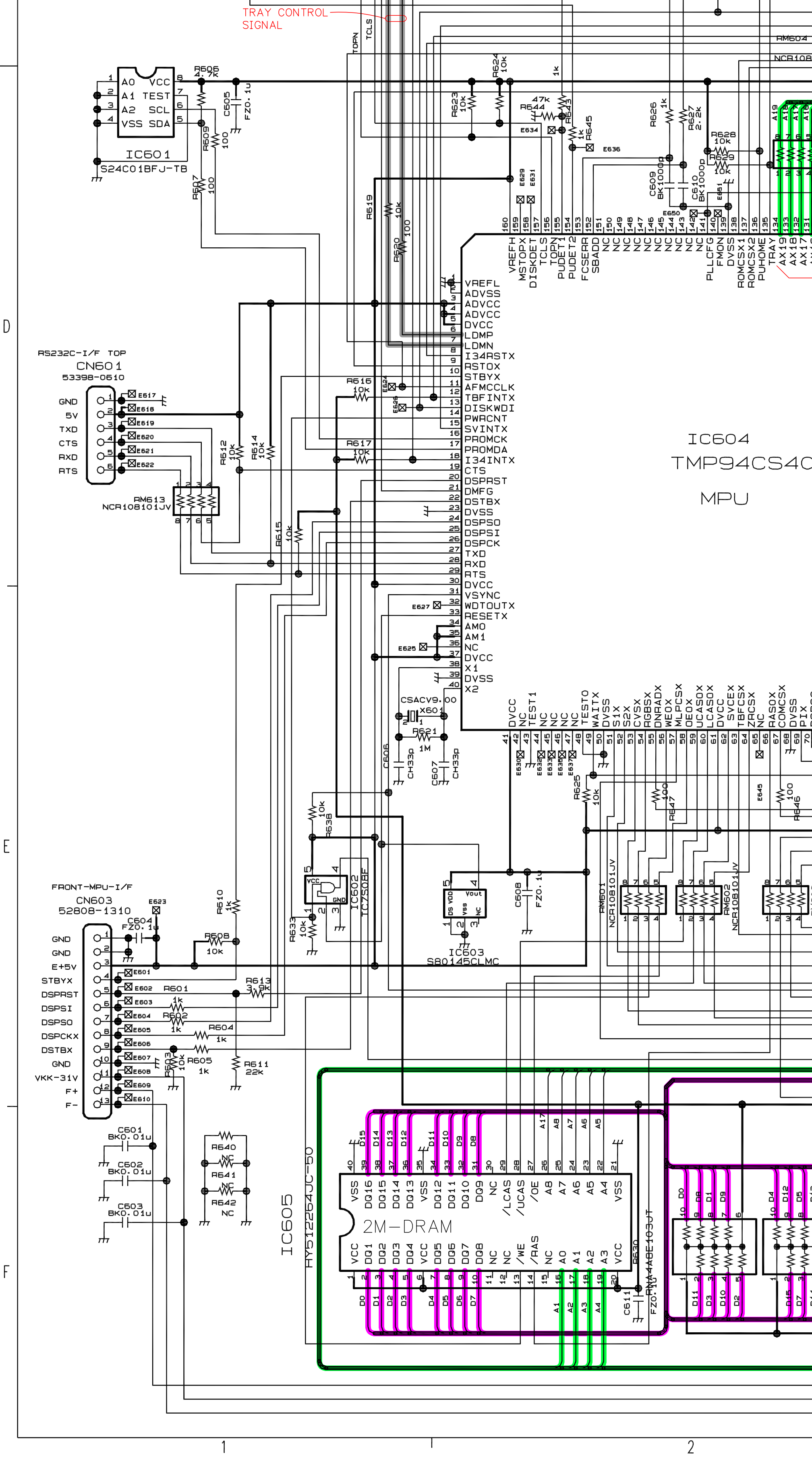
	SD9200	SD6200	SD4205	SD500.5000
IC212	S24C02BFJ	NC	NC	S24C02BFJ
IC213	REGULUS	NC	NC	REGULUS
RM201.202.203	NC	NCR108330	NCR108330	NC

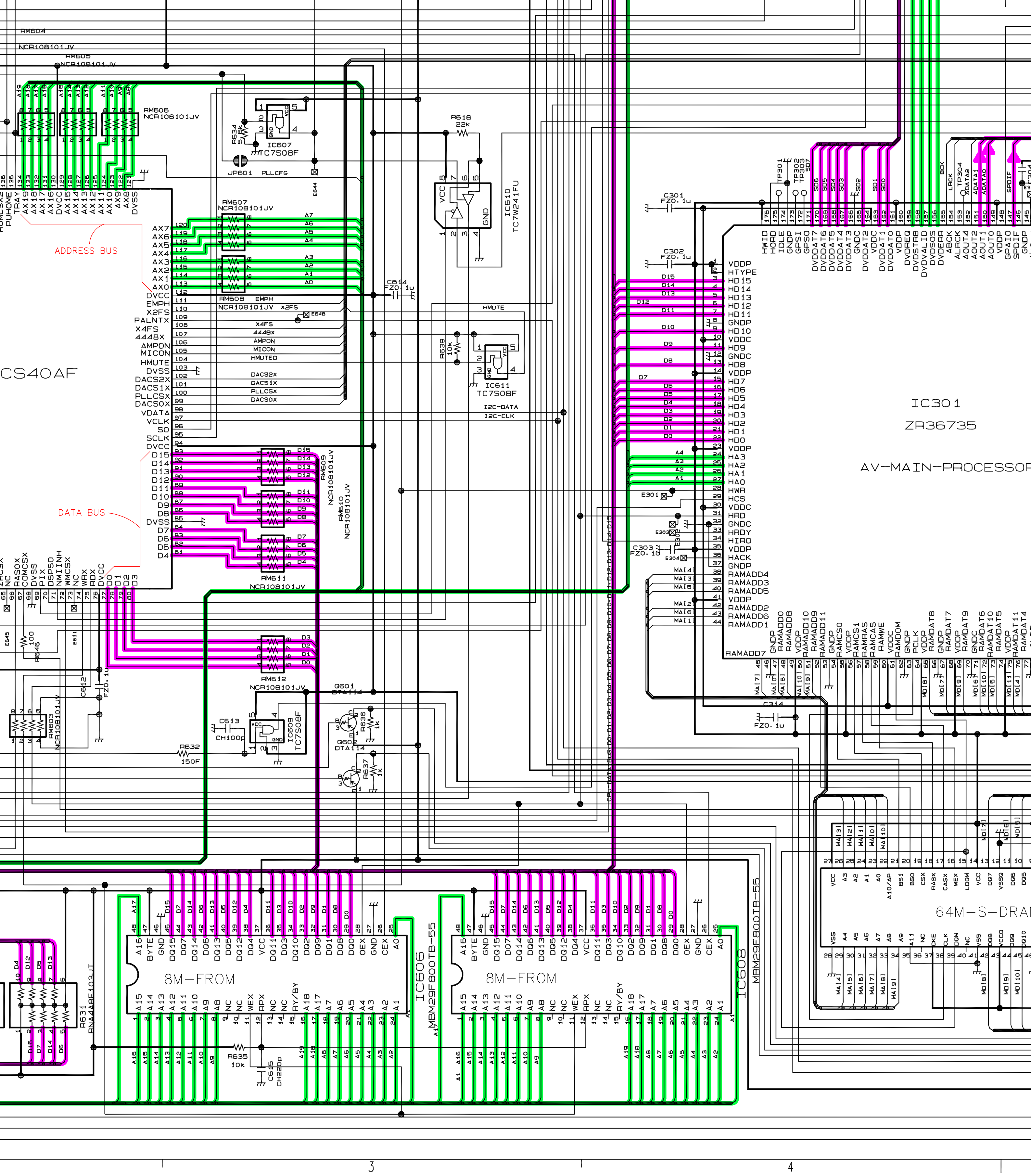
*
IC908 and its peripheral circuit are not provided depending on the each unit.

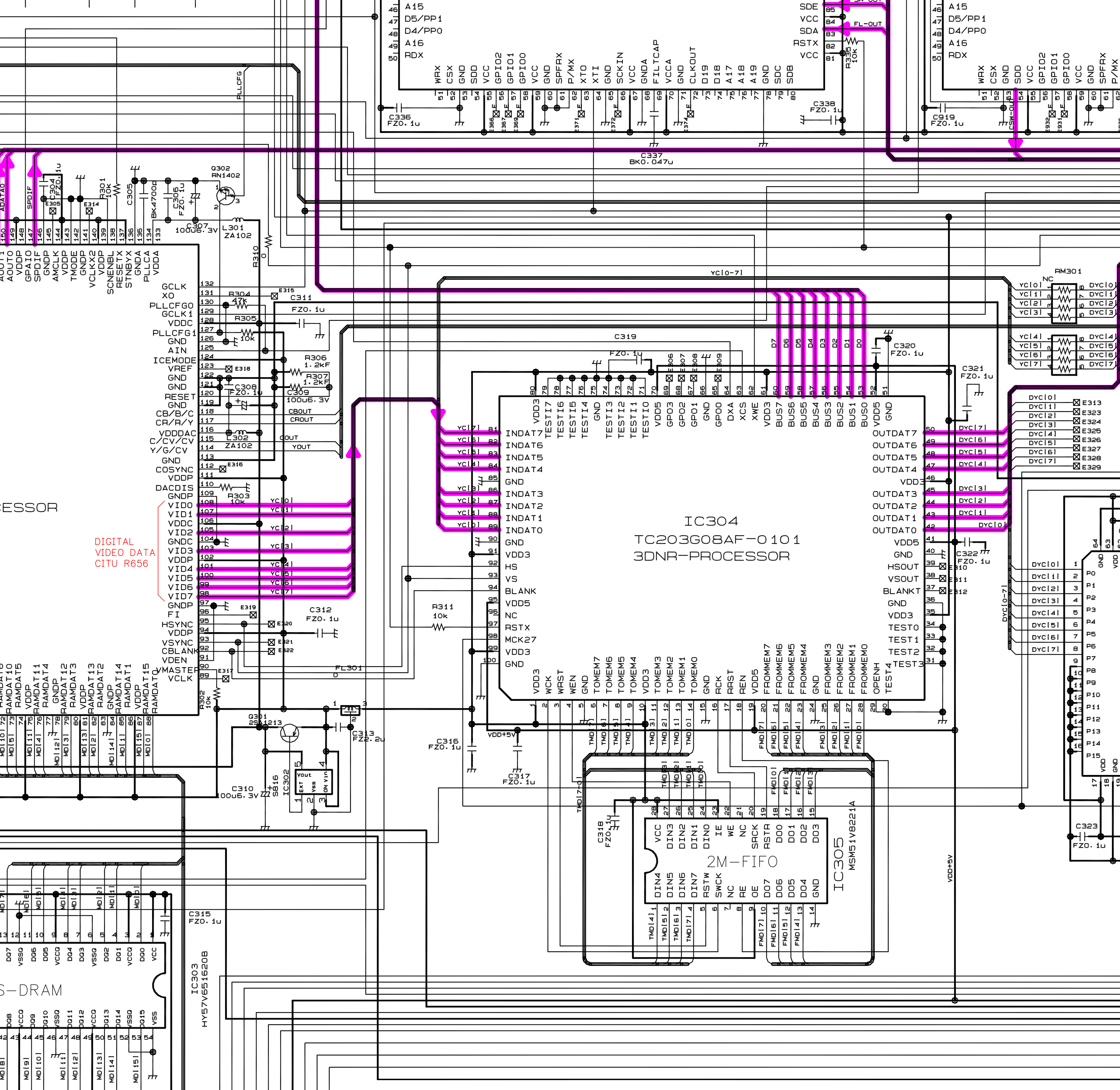
	SD9200	SD6200	SD4205	SD500.5000
908	ZR38601	NC	NC	ZR38601
	TC7W241FU	NC	NC	TC7W241FU
	RN1402	NC	NC	RN1402
	NC	33	33	NC


7
8
A
B
C
SCLK
R905
220
R906
100
R907
100
C910
100u6.3V
C912
FZ2.2u
C914
100u6.3V
C916
FZ0.1u
E901
C906
FZ2.2u
IC903
PLL1700
Master
Clock
MC/FS1
MD/FS0
RSTX
SCKO3
VDD
GND
SCKO2
SCKO4
SCKO1
MCKOX
ML/SR0
MODE
VDD
GND
XTI
XTO
GND
VDDP
RSV
MCKO
IC904
NC
R902
100
DACS0X
IC905
TC7SH08FU
IC906
NC
ML
MC
MD
MUTEX
MODE
CSX
RSTX
ZERO
VCC
AGND
EXTL
NC
LOUT
VCC
LRCK
DIN
BCK
CLKO
XTI
XTO
DGND
VDD
VCC
AGND
EXTR
NC
ROUT
AGND
ADATA1
R901
10k
IC902
NJM2370
E929
R925
0
R903
100
R904
330
X901
C901
10u16V
C902
100u6.3V
C903
FZ0.1u
C904
CH10p
C905
CH6p
C907
CH15p
C908
FZ2.2u
PLLCSX
C909
FZ0.1u
L901
Z4102
C917
FZ0.1u
C911
100u6.3V
C913
FZ2.2u
E927
E928
SMD49-27MHz
LRCK
BCK
X4FS
IC909
NJU6321PE
R917
10k
CONTX
XTX
IN1
VSS
VDD
XT
IN2
FOUT
Q901
RN1402
C928
FZ0.1u
R926
33
R929
NC
ADATA0.ADATA1.ADATA2.BCK.LRCK.SPDIF
D901
1SS368
R928
NC
R927
10k
IC910
TC7W241FU
VCC
GND
Q902
RN1402
SPDIF
LRCK
BCK
ADATA0
ADATA1
ADATA2
RM905
NC
R916
NC
LRCKO
BCKO
FL-OUT
SR-OUT
CSW-OUT
R908
AUDIO-SIGNAL
I/F
CN901
52808-2610
R913
33
R915
33
R919
100
HMUTE
R921
D902
1SS368
R912
33
100
R924
100
MICON
R911
100
AMPON
X2FS
RM901
NCR108101JV
C915
FZ0.1u
RM902
NCR108330JV
LRCKO
BCKO
FL-OUT
CSW-OUT
R909
100
DACS1X
DACS2X
RM903
NCR108330JV
X4FS
R923
100
4448X
SR-OUT
DACS0X
EMPH
RM904
NCR108330JV
E902
E903
E904
E905
E906
E907
E908
E909
E910
E911
E912
E913
E914
E915
E916
E917
E918
E919
E920
E921
E922
E923
E924
E925
E926
E930
E940
E941
E942
E943
1 Lch-OUT
2 AGND
3 Rch-OUT
4 ZERO
5 HMUTE
6 IEC958OUT
7 AGND
8 G+6DB
9 MICON
10 MIC-DATA
11 AMPON
12 RSTX
13 X2fs
14 2/6X
15 MCK
16 AGND
17 LRCK
18 BCK
19 ADATA1
20 ADATA2
21 SDATA
22 SCLK
23 DA1CSX
24 DA2CSX
25 GND
26 X4fs
27 4448X
28 ADATA3
29 DA3CSX
30 EMPH
R910
10k
C920
FZ0.1u
E933
E935
E938
C922
FZ0.1u
C924
FZ0.1u
C926
FZ0.1u
R918
10k
A6
A5
GND
GPIO4
VCC
A4
D12/ERR
GPIO5
D13/C/D
VCC
A3
A2
A1
GND
D14/RDY
VCC
INTX
TMS
SSX
GND
A0
D11/PP7
D15
SPFTX/SDG
D16
SCKB
D17
WSB
SDF
VCC
WSA
SCKA
GND
SI
TDI
SCK
TCK
SDE
VCC
SDA
RSTX
BCKO
LRCKO
ADATA2
LRCK
BCK
ADATA1
ADATA0
IC907
ZR38601
MLP DETECTER

	SD9200	SD6200	SD4205	SD500.5000
IC901	NC	TC7W241FU	TC7W241FU	NC
IC904	NC	TC7SH08FU	TC7SH08FU	NC
IC906	NC	PCM1716E	PCM1716E	NC
IC909	NJU6321PE	NC	NC	NJU6321PE
Q901	RN1402	NC	NC	RN1402
RM905	NC	NCR108330	NCR108330	NC
R929.916	NC	33	33	NC


TRAY CONTROL SIGNAL
IC601
S24C01BFJ-TB
A0 VCC
A1 TEST
A2 SCL
VSS SDA
R606 4.7k
C605 FZ0.1u
R609 100
R607 100
R623 10k
R624 10k
R644 47k
R643 1k
R645 1k
R626 1k
R627 2.2k
R628 10k
R629 10k
C609 BK1000p
C610 BK1000p
R619 10k
R620 100
RS232C-I/F TOP
CN601
53398-0610
GND
5V
TXD
CTS
RXD
RTS
RM613
NCR108101JV
R612 10k
R614 10k
R616 10k
R617 10k
R615 10k
IC604
TMP94CS40
MPU
VREFL
ADVSS
ADVCC
ADVCC
DVCC
LDMP
LDMN
I34RSTX
RSTOX
STBYX
AFMCCLK
TBFINTX
DISKWDI
PWRCNT
SVINTX
PROMCK
PROMDA
I34INTX
CTS
DSPRST
DMFG
DSTBX
DVSS
DSPSO
DSPSI
DSPCK
TXD
RXD
RTS
DVCC
VSYNC
WDTOUTX
RESETX
AM0
AM1
NC
DVCC
X1
DVSS
X2
VREFH
MSTOPX
DISKDET
TCLS
TOPN
PUDET1
PUDET2
FCSERR
SBADD
PLLCFG
FMON
DVSS
ROMCSX1
ROMCSX2
PUHOME
TRAY
AX19
AX18
AX17
DVCC
NC
TEST1
TESTO
WAITX
DVSS
S1X
S2X
CVSX
PRGSX
DMRADX
WEOX
MLPCSX
OEOX
UCASOX
LCASOX
DVCC
SVCEX
TBFCSX
ZRCSX
NC
RASOX
COMCSX
DVSS
CSACV9.00
X601
R621 1M
C606 CH33p
C607 CH33p
R625 10k
R647 100
R646 100
R638 10k
IC602
TC7S08F
IC603
S80145CLMC
C608 FZ0.1u
RM601
NCR108101JV
RM602
NCR108101JV
FRONT-MPU-I/F
CN603
52808-1310
GND
GND
E+5V
STBYX
DSPRST
DSPSI
DSPSO
DSPCKX
DSTBX
GND
VKK-31V
F+
F-
C604 FZ0.1u
R610 1k
R608 10k
R633 10k
R601 1k
R602 1k
R603 10k
R604 1k
R605 1k
R613 3.9k
R611 22k
C601 BK0.01u
C602 BK0.01u
C603 BK0.01u
R640 NC
R641 NC
R642 NC
IC605
HY51226 4JC-50
2M-DRAM
VSS DQ16 DQ15 DQ14 DQ13 VSS DQ12 DQ11 DQ10 DQ9 NC /LCAS /UCAS /OE A8 A7 A6 A5 A4 VSS
VCC DQ1 DQ2 DQ3 DQ4 VCC DQ5 DQ6 DQ7 DQ8 NC NC /WE /RAS NC A0 A1 A2 A3 VCC
R630 RN1/4AE103JT
C611 FZ0.1u
D
E
F
1
2


RM604
NCR108101JV
RM605
NCR108101JV
RM606
NCR108101JV
RM607
NCR108101JV
RM608
NCR108101JV
RM609
NCR108101JV
RM610
NCR108101JV
RM611
NCR108101JV
RM612
NCR108101JV
RM603
NCR108101JV
R631
RNA4AE103JT
ADDRESS BUS
DATA BUS
CS40AF
IC607
TC7S08F
R634
JP601
PLLCFG
R618
22k
IC610
TC7W241FU
C614
FZ0.1u
R639
10k
IC611
TC7S08F
HMUTE
I2C-DATA
I2C-CLK
C612
FZ0.1u
R646
100
C613
CH100p
IC609
TC7S08F
R632
150F
Q601
DTA114
Q602
DTA114
R636
1k
R637
1k
R635
10k
C615
CH220p
IC606
MBM29F800TB-55
8M-FROM
IC608
MBM29F800TB-55
8M-FROM
C301
FZ0.1u
C302
FZ0.1u
C303
FZ0.1u
C314
FZ0.1u
TP301
TP302
TP303
TP304
IC301
ZR36735
AV-MAIN-PROCESSOR
64M-S-DRAM
CPU-DATA BUS D0-D15
3
4


IC304
TC203G08AF-0101
3DNR-PROCESSOR
IC305
MSM51V8221A
2M-FIFO
IC303
HY57V651620B
S-DRAM
ESSOR
DIGITAL
VIDEO DATA
CITU R656
RM301
Q302
RN1402
Q301
2SA1213
IC302
S816
L301
ZA102
L302
ZA102
FL301
YC[0-7]
DYC[0-7]
TMD[7-0]
C319
C337
BK0.047u
C336
FZ0.1u
C338
FZ0.1u
C919
FZ0.1u
C320
FZ0.1u
C321
FZ0.1u
C322
FZ0.1u
C323
FZ0.1u
C312
FZ0.1u
C313
FZ2.2u
C315
FZ0.1u
C316
FZ0.1u
C317
FZ0.1u
C318
FZ0.1u
C310
100u6.3V
C307
100u6.3V
C309
100u6.3V
R311
10k
R302
10k
R304
47k
R306
1.2kF
R307
1.2kF
R303
10k
VDD+5V
FL-OUT
SPDIF
PLLCFG

	SD9200	SD6200	SD4205	SD500	5000
IC304	COMET	NC	NC	NC	NC
IC305	MSM51V8221	NC	NC	NC	NC
IC306	NC	NC	ADV7190	ADV7190	NC
Q302	RN1402	NC	NC	RN1402	RN1402
RM301·302	NC	NCR108330	NCR108330	NCR108330	NCR108330
CN301	NC	NC	52808-1410	52808-1810	NC
CN302	3-176314-0	3-176314-0	NC	NC	3-176314-0
CN502	NC	6207-2905	6207-2905	6207-2905	6207-2905
CN504	B7B-PHSM3	NC	NC	NC	NC

5 6

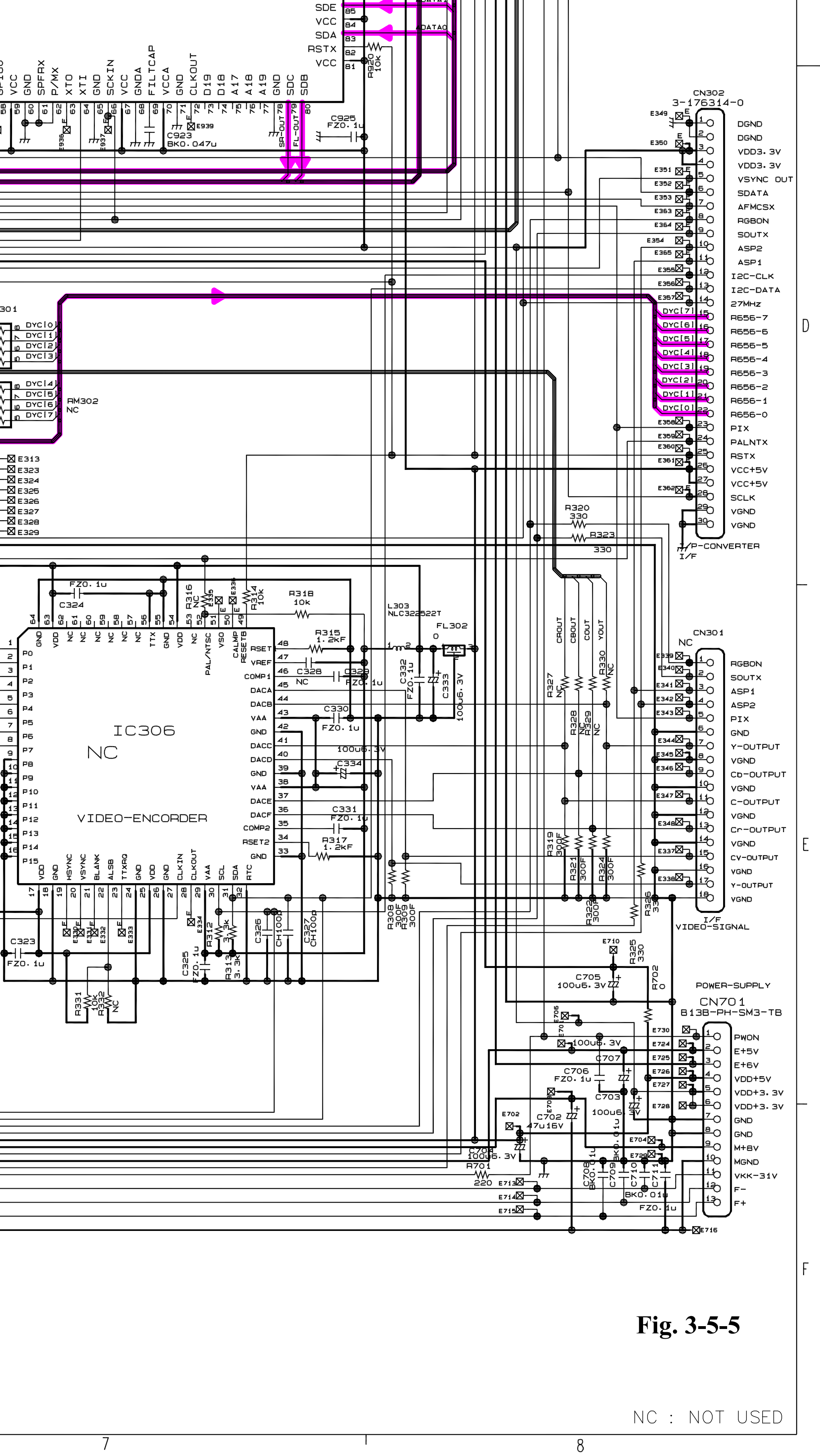

CN302
3-176314-0
DGND
DGND
VDD3.3V
VDD3.3V
VSYNC OUT
SDATA
AFMCSX
RGBON
SOUTX
ASP2
ASP1
I2C-CLK
I2C-DATA
27MHz
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
PIX
PALNTX
RSTX
VCC+5V
VCC+5V
SCLK
VGND
VGND
P-CONVERTER I/F
DYC[0]
DYC[1]
DYC[2]
DYC[3]
DYC[4]
DYC[5]
DYC[6]
DYC[7]
RM302
NC
SDE
VCC
SDA
RSTX
VCC
R920
10k
C925
FZ0.1u
C923
BK0.047u
E939
SR-OUT
FL-OUT
VCC
GND
SPFRX
P/MX
XTO
XTI
GND
SCKIN
VCC
GNDA
FILTCAP
VCCA
GND
CLKOUT
D19
D18
A17
A18
A19
GND
SDC
SDB
E313
E323
E324
E325
E326
E327
E328
E329
IC306
NC
VIDEO-ENCORDER
C324
FZ0.1u
R316
NC
R314
10k
R318
10k
L303
NLC322522T
FL302
0
R315
1.2kF
C328
NC
C329
FZ0.1u
C332
FZ0.1u
C333
100u6.3V
C330
FZ0.1u
C334
100u6.3V
C331
FZ0.1u
R317
1.2kF
RSET
VREF
COMP1
DACA
DACB
VAA
GND
DACC
DACD
GND
VAA
DACE
DACF
COMP2
RSET2
GND
PAL/NTSC
VSO
CALMP
RESETB
HSYNC
VSYNC
BLANK
ALSB
TTXRQ
CLKIN
CLKOUT
SCL
SDA
RTC
TTX
C323
FZ0.1u
R331
10k
R332
NC
R312
3.3k
R313
3.3K
C325
FZ0.1u
C326
CH100p
C327
CH100p
R308
300F
R305
300F
R320
330
R323
330
CROUT
CBOUT
COUT
YOUT
R327
NC
R330
NC
R328
NC
R329
NC
R319
300F
R321
300F
R324
300F
R322
300F
R326
33
CN301
NC
RGBON
SOUTX
ASP1
ASP2
PIX
GND
Y-OUTPUT
VGND
Cb-OUTPUT
VGND
C-OUTPUT
VGND
Cr-OUTPUT
VGND
CV-OUTPUT
VGND
Y-OUTPUT
VGND
I/F
VIDEO-SIGNAL
R325
330
R702
0
C705
100u6.3V
POWER-SUPPLY
CN701
B13B-PH-SM3-TB
PWON
E+5V
E+6V
VDD+5V
VDD+3.3V
VDD+3.3V
GND
GND
M+8V
MGND
VKK-31V
F-
F+
C707
100u6.3V
C706
FZ0.1u
C703
100u6.3V
C702
47u16V
C704
100u6.3V
R701
220
C708
BK0.1u
C709
BK0.01u
C710
BK0.01u
C711
FZ0.1u
E716
D
E
F
7
8

Fig. 3-5-5

NC : NOT USED

Main Circuit Diagram

Part No.	Location
C201	B6
C202	A6
C203	B6
C204	A6
C205	B7
C208	B4
C209	B4
C210	C4
C211	A5
C212	B5
C213	C5
C214	B5
C215	B5
C216	B5
C301	D4
C302	D4
C303	E4
C304	D5
C305	D5
C306	D5
C307	D5
C308	D5
C309	D5
C310	E5
C311	D5
C312	E5
C313	E5
C314	E4
C315	E5
C316	E5
C317	E6
C318	E6
C319	D6
C320	D6
C321	D7
C322	E7
C323	E7
C324	E7
C325	E7
C326	E7
C327	E7
C328	E7
C329	E7
C330	E7
C331	E7
C332	E8
C333	E8
C334	E7
C335	C5
C336	D5
C337	D6
C338	D6
C339	C6
C340	C6
C341	C6
C401	B2
C402	B3
C403	B2
C404	C2
C405	C3
C406	B3
C407	B3
C408	C3
C409	B3
C410	B3
C411	B3
C412	C3
C413	B3
C414	B3
C415	C3
C416	B3
C417	B3
C418	B3
C419	B3
C420	B3
C421	C3
C422	B3
C423	B3
C424	B3
C425	B3
C426	B3
C427	B3
C428	B3
C429	B3
C430	B3
C431	B3
C432	B3
C433	A3
C434	A3
C435	A3
C436	C3
C437	C3
C438	C3
C439	A3
C440	A4
C441	C4
C442	B4
C443	B4
C444	B4
C445	C4
C446	B4
C447	A4
C448	B4
C449	B4
C450	B4
C451	B4
C452	C3
C453	C3
C454	B3
C501	B1
C502	B1
C503	B1
C504	C1
C505	B1
C506	B1
C507	C1
C508	A1
C509	C1
C510	A2
C511	C2
C512	B2
C513	A2
C514	B2
C515	B2
C516	B2
C517	A2
C518	B2
C519	A2
C520	B2
C522	B2
C523	B2
C524	B2
C525	B2
C526	A2
C527	B2
C528	A2
C529	B2
C530	A2
C531	B2
C532	B2
C533	B2
C534	B2
C535	B2
C536	B2
C538	B2
C539	A1
C541	B1
C542	B1
C543	A1
C601	F1
C602	F1
C603	F1
C604	E1
C605	D1
C606	E1
C607	E2
C608	E2
C609	D2
C610	D2
C611	F2
C612	E2
C613	E3
C614	D3
C615	F3
C702	F8
C703	E8
C704	F8
C705	E8
C706	E8
C707	E8
C708	F8
C709	F8
C710	F8
C711	F8
C901	A7
C902	A7
C903	A7
C904	A7
C905	A7
C906	A7
C907	A7
C908	A7
C909	A8
C910	A8
C911	A8
C912	A8
C913	A8
C914	A8
C915	C8
C916	A8
C917	A8
C918	C6
C919	D7
C920	C7
C922	C7
C923	D7
C924	C7
C925	D7
C926	C8
C927	A7
C928	B7
CN301	E8
CN302	D8
CN501	A1
CN502	B1
CN503	C1
CN504	B1
CN601	D1
CN603	E1
CN701	E8
CN901	B8
D501	B1
D502	B1
D901	B7
D902	B8
E201	A2
E202	B7
E203	B7
E204	B7
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E219	B5
E220	B5
E221	B5
E235	D7
E301	E4
E302	E4
E303	E4
E304	E4
E305	D5
E306	D6
E307	D6
E308	D6
E309	D6
E310	E7
E311	E7
E312	E7
E313	D7
E314	D5
E315	D5
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E366	D6
E367	D6
E368	C6
E369	D6
E370	C6
E371	D6
E372	D6
E373	C6
E374	D6
E401	B3
E402	C2
E405	C3
E406	C3
E407	C3
E408	B3
E409	B3
E410	C3
E411	B3
E412	B3
E413	C3
E414	C3
E415	C3
E416	C3
E417	C4
E418	C4
E419	C4
E420	C4
E421	C4
E422	C4
E423	C4
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E426	B4
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E526	B1
E527	B1
E528	C1
E529	C1
E530	C1
E531	C1
E532	C1
E533	B1
E534	A1
E535	A1
E536	A1
E537	B1
E538	C1
E539	B1
E540	C1
E541	B1
E542	C1
E543	C1
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E545	C2
E546	C2
E547	C2
E548	A2
E549	C1
E550	B2
E551	B2
E552	B2
E553	B2
E554	A1
E555	A1
E556	A1
E557	A1
E558	B1
E559	B1
E560	C1
E561	C1
E562	C1
E563	C1
E564	C1
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E605	E1
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E608	E1
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E611	E2
E617	D1
E618	D1
E619	D1
E620	D1
E621	D1
E622	D1
E623	E1
E624	D1
E625	E1
E626	D1
E627	E1
E629	D2
E630	E2
E631	D2
E632	E2
E633	E2
E634	D2
E635	E2
E636	D2
E637	E2
E644	D3
E645	E2
E648	D3
E650	D2
E651	D2
E701	E8
E702	F8
E703	E8
E704	F8
E706	E8
E710	E8
E713	F8
E714	F8
E715	F8
E716	F8
E724	E8
E725	E8
E726	E8
E727	E8
E728	F8
E729	F8
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E913	B8
E914	B8
E915	B8
E916	C8
E917	C8
E918	C8
E919	C8
E920	C8
E921	C8
E922	C8
E923	C8
E924	C8
E925	C8
E926	C8
E927	A8
E928	A8
E929	A7
E930	C8
E931	D7
E932	D7
E933	C7
E935	C7
E936	D7
E937	D7
E938	C7
E939	D7
E940	C8
E941	C8
E942	C8
E943	C8
FL301	E5
FL302	E8
FL401	B2
IC201	A6
IC202	B6
IC212	A5
IC213	B5
IC301	D4
IC302	E5
IC303	F5
IC304	E6
IC305	E6
IC306	E7
IC401	B3
IC402	A4
IC403	A3
IC501	B1
IC502	B2
IC503	C1
IC504	B2
IC601	D1
IC602	E1
IC603	E2
IC604	D2
IC605	F1
IC606	F3
IC607	D3
IC608	F4
IC609	E3
IC610	D3
IC611	D3
IC901	A7
IC902	A7
IC903	A7
IC904	A7
IC905	A7
IC906	A8
IC907	C7
IC908	C6
IC909	B7
IC910	C7
JP601	D3
L301	D5
L302	D5
L303	E8
L901	A8
Q301	E5
Q302	D5
Q401	C3
Q501	A1
Q502	B1
Q601	E3
Q602	E3
Q901	B7
Q902	C7
R201	C5
R202	A5
R203	A5
R205	B6
R301	D5
R302	E5
R303	D5
R304	D5
R305	D5
R306	D5
R307	D5
R308	E8
R309	E8
R310	D5
R311	E5
R312	E7
R313	E7
R314	E7
R315	E7
R316	E7
R317	E7
R318	E7
R319	E8
R320	D8
R321	E8
R322	E8
R323	D8
R324	E8
R325	E8
R326	E8
R327	E8
R328	E8
R329	E8
R330	E8
R331	E7
R332	E7
R333	C6
R334	C6
R335	C6
R401	B3
R402	C2
R403	B3
R404	C3
R405	C3
R406	B3
R407	B3
R408	C3
R409	B3
R410	C3
R411	B3
R412	B3
R413	B3
R414	B3
R415	B3
R416	B3
R417	C3
R418	B3
R419	B3
R420	B3
R421	C3
R422	C3
R423	C3
R424	B3
R425	C3
R426	A3
R427	B3
R428	A3
R429	B3
R430	A3
R431	B3
R432	A3
R433	B3
R434	A3
R435	B3
R436	A3
R437	B3
R438	A3
R439	B3
R440	C3
R441	C3
R442	B3
R443	B3
R444	C3
R445	C3
R446	C3
R447	C3
R448	C4
R449	B4
R450	B4
R451	C4
R452	B4
R453	C3
R454	B3
R456	A3
R457	B3
R458	B3
R459	A3
R460	A3
R461	C4
R501	B1
R502	B1
R503	B1
R504	B1
R505	A1
R506	B1
R507	A1
R508	A2
R509	B1
R510	A1
R512	A1
R513	C2
R515	B2
R516	B2
R517	B2
R518	C2
R519	A2
R520	C2
R521	C2
R522	C2
R523	C2
R524	C2
R525	A2
R526	C2
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R529	C2
R530	C2
R532	C2
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R546	B2
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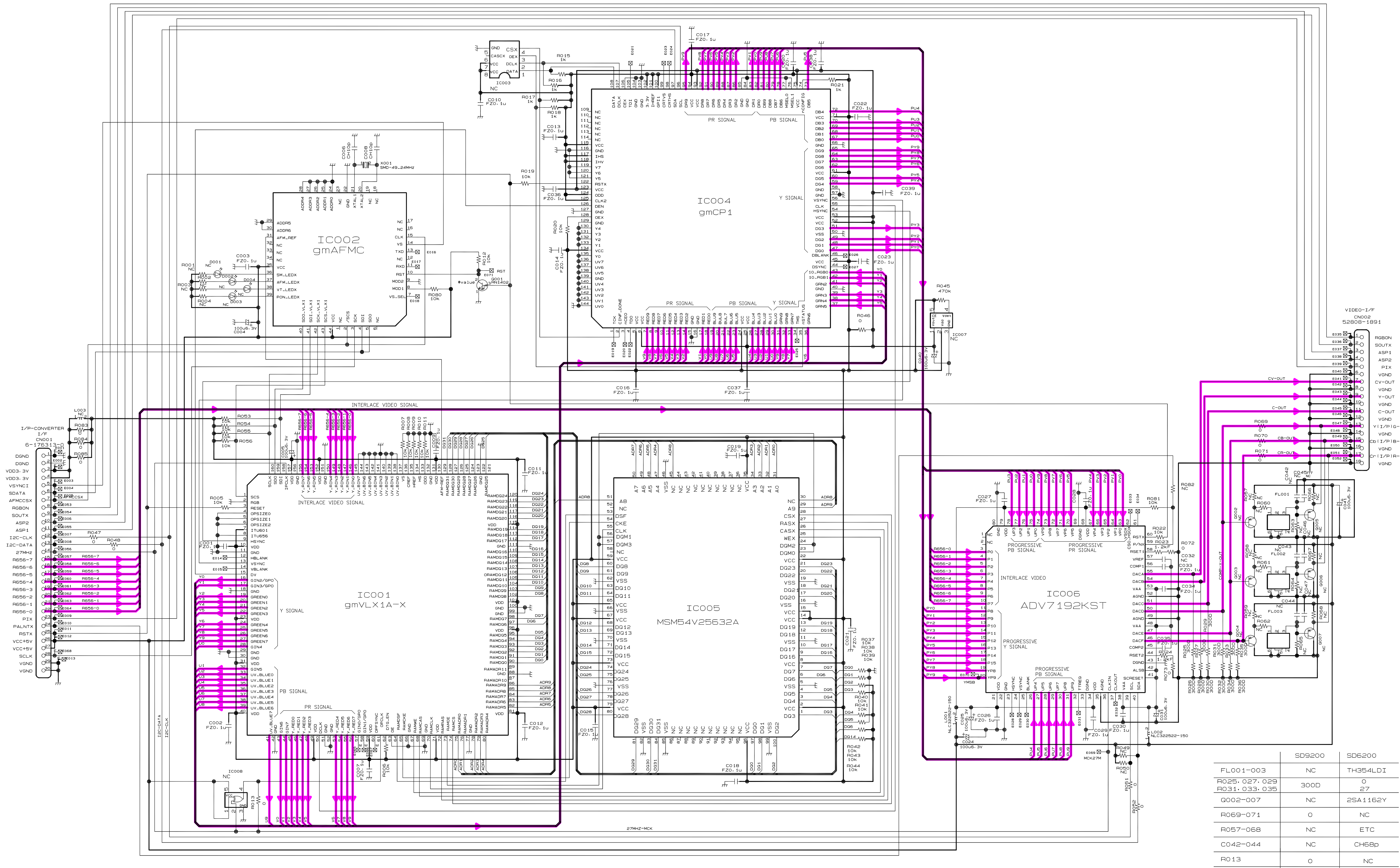
R554	B1
R555	B1
R556	B1
R557	A1
R601	E1
R602	E1
R603	E1
R604	E1
R605	E1
R606	D1
R607	D1
R608	E1
R609	D1
R610	E1
R611	E1
R612	D1
R613	E1
R614	D1
R615	D1
R616	D1
R617	D1
R618	D3
R619	D1
R620	D1
R621	E1
R623	D2
R624	C2
R625	E2
R626	D2
R627	D2
R628	D2
R629	D2
R630	F2
R631	F2
R632	E3
R633	E1
R634	D3
R635	F3
R636	E3
R637	E3
R638	E1
R639	D3
R640	F1
R641	F1
R642	F1
R643	D2
R644	D2
R645	D2
R646	E2
R647	E2
R701	F8
R702	E8
R901	A7
R902	A8
R903	A7
R904	A7
R905	A8
R906	A8
R907	A8
R908	B8
R909	C8
R910	C7
R911	B8
R912	B8
R913	B8
R915	B8
R916	B7
R917	B7
R918	C8
R919	B8
R920	C8
R921	B8
R923	C8
R924	B8
R925	A7
R926	B8
R927	B7
R928	B7
R929	B8
RM201	A4
RM202	A4
RM203	A4
RM301	D7
RM302	D7
RM601	E2
RM602	E2
RM603	E2
RM604	C2
RM605	D2
RM606	D2
RM607	D3
RM608	D3
RM609	D3
RM610	E3
RM611	E3
RM612	E3
RM613	D1
RM901	B8
RM902	C8
RM903	C8
RM904	C8
RM905	B7
TP201	A6
TP202	A6
TP203	A6
TP204	A6
TP205	A6
TP301	D4
TP302	D4
TP303	D4
TP304	D4
TP401	B3
TP402	B3
TP403	B3
TP404	B3
TP405	B3
TP406	B3
TP407	B3
TP408	A3
TP409	B3
TP410	C4
TP411	C4
TP412	B4
TP413	B4
TP414	C3
TP501	B1
TP502	A2
TP503	B2
TP504	A2
X401	C3
X601	E1
X901	A7

5-4. Sub Video Circuit Diagram

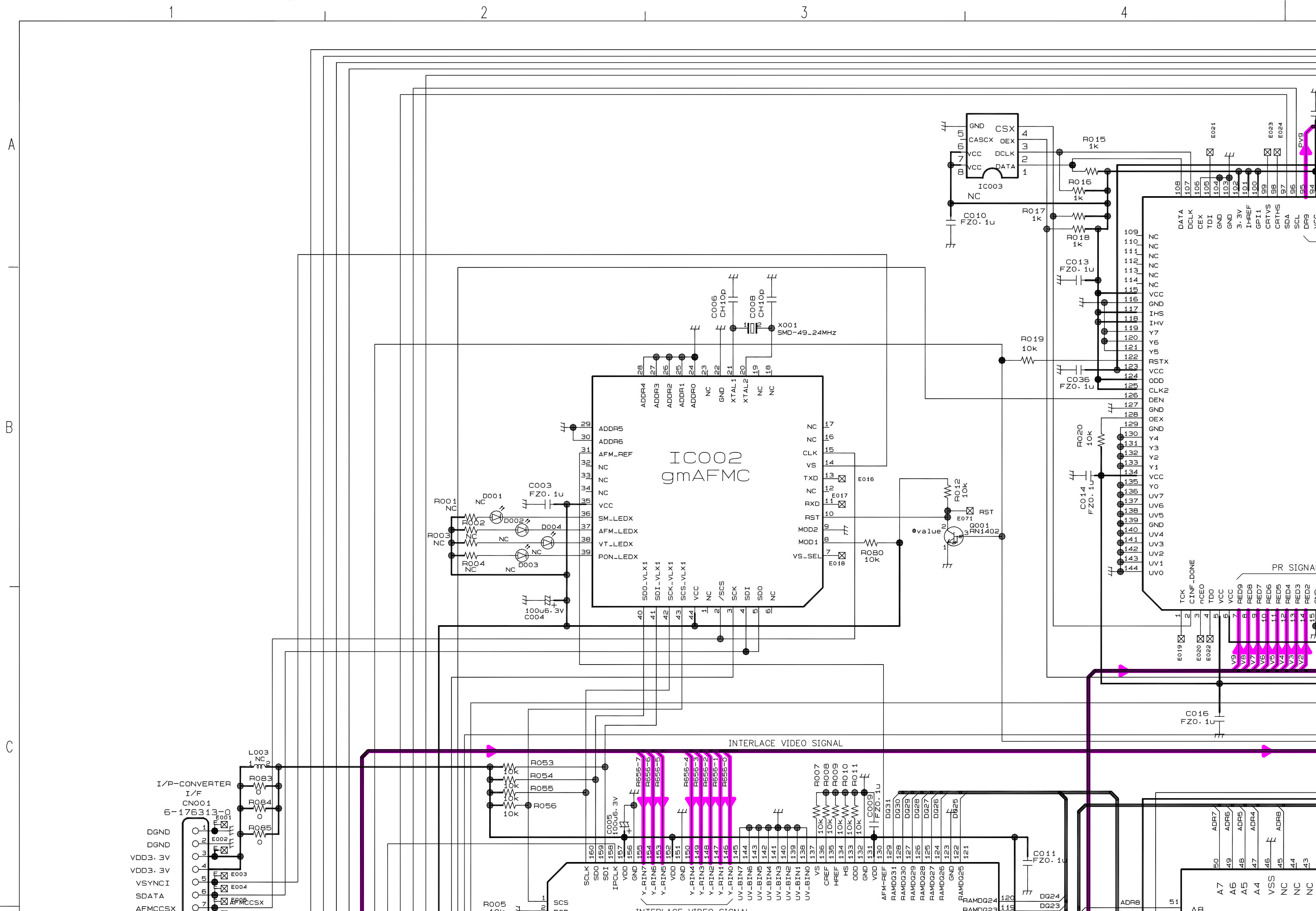

IC001
gmVLX1A-X
IC002
gmAFMC
IC003
IC004
gmCP1
IC005
MSM54V25632A
IC006
ADV7192KST
IC007
IC008
X001
SMD-49_24MHz
I/P-CONVERTER
I/F
CN001
6-176313-
VIDEO-I/F
CN002
52808-1891
DGND
DGND
VDD3.3V
VDD3.3V
VSYNC1
SDATA
AFMCCSX
RGBON
SOUTX
ASP2
ASP1
I2C-CLK
I2C-DATA
27MHz
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
PIX
PALNTX
RSTX
VCC+5V
VCC+5V
SCLK
VGND
VGND
RGBON
SOUTX
ASP1
ASP2
PIX
VGND
CV-OUT
VGND
Y-OUT
VGND
C-OUT
VGND
Y(I/P)G-OUT
VGND
Cb(I/P)B-OUT
VGND
Cr(I/P)R-OUT
VGND
INTERLACE VIDEO SIGNAL
Y SIGNAL
PB SIGNAL
PR SIGNAL
PROGRESSIVE PB SIGNAL
PROGRESSIVE PR SIGNAL
PROGRESSIVE Y SIGNAL
INTERLACE VIDEO
27MHZ-MCK
CV-OUT
C-OUT
CB-OUT
CR-OUT
COMP-OUT
FL001
FL002
FL003
L001
L002
L003
1
2
3
4
5
6
7
8
A
B
C
D
E
F

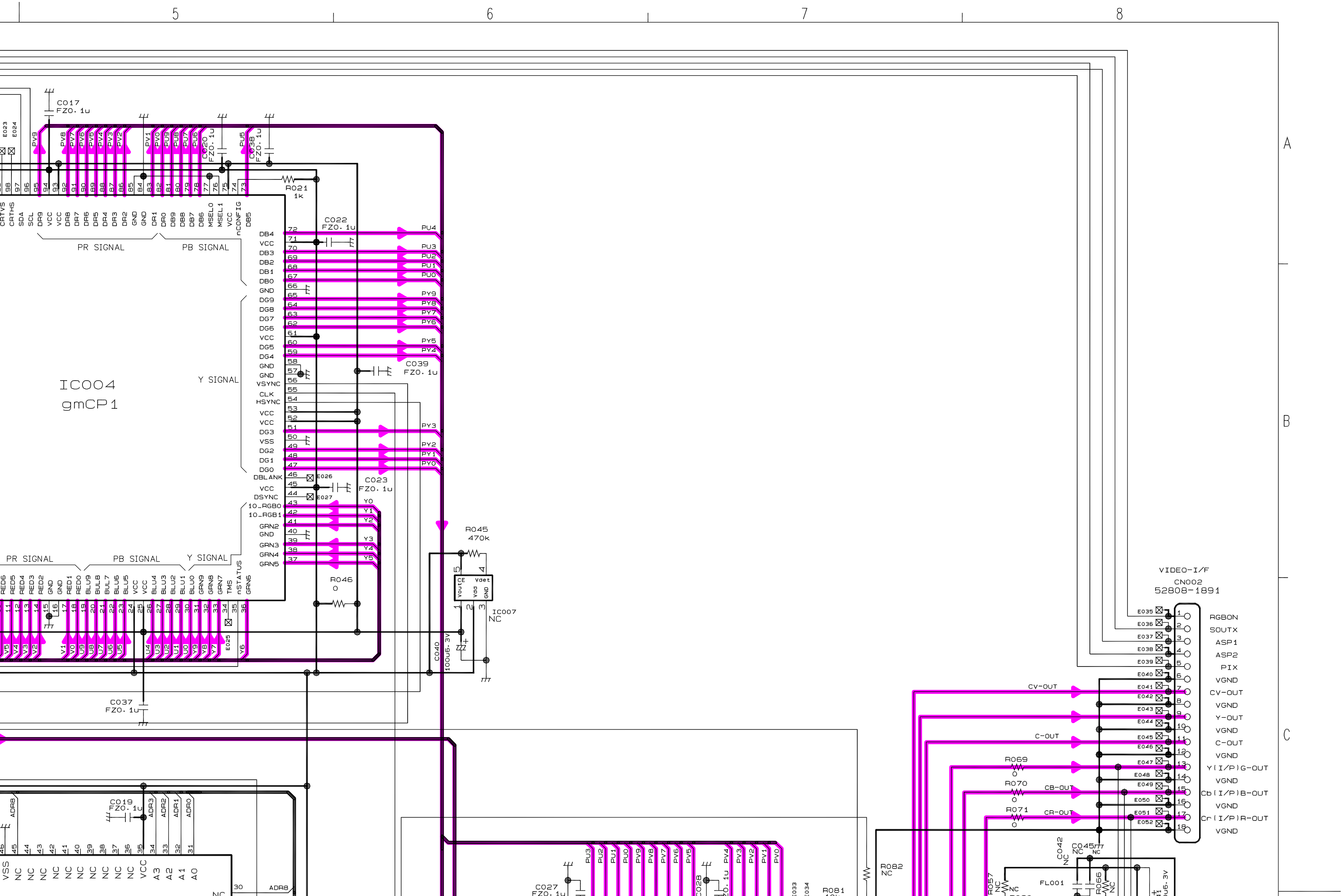
	SD9200	SD6200
FL001-003	NC	TH354LDI
R025, 027, 029 R031, 033, 035	300D	0 27
Q002-007	NC	2SA1162Y
R069-071	0	NC
R057-068	NC	ETC
C042-044	NC	CH68p
R013	0	NC
IC008	NC	TC7SH86F

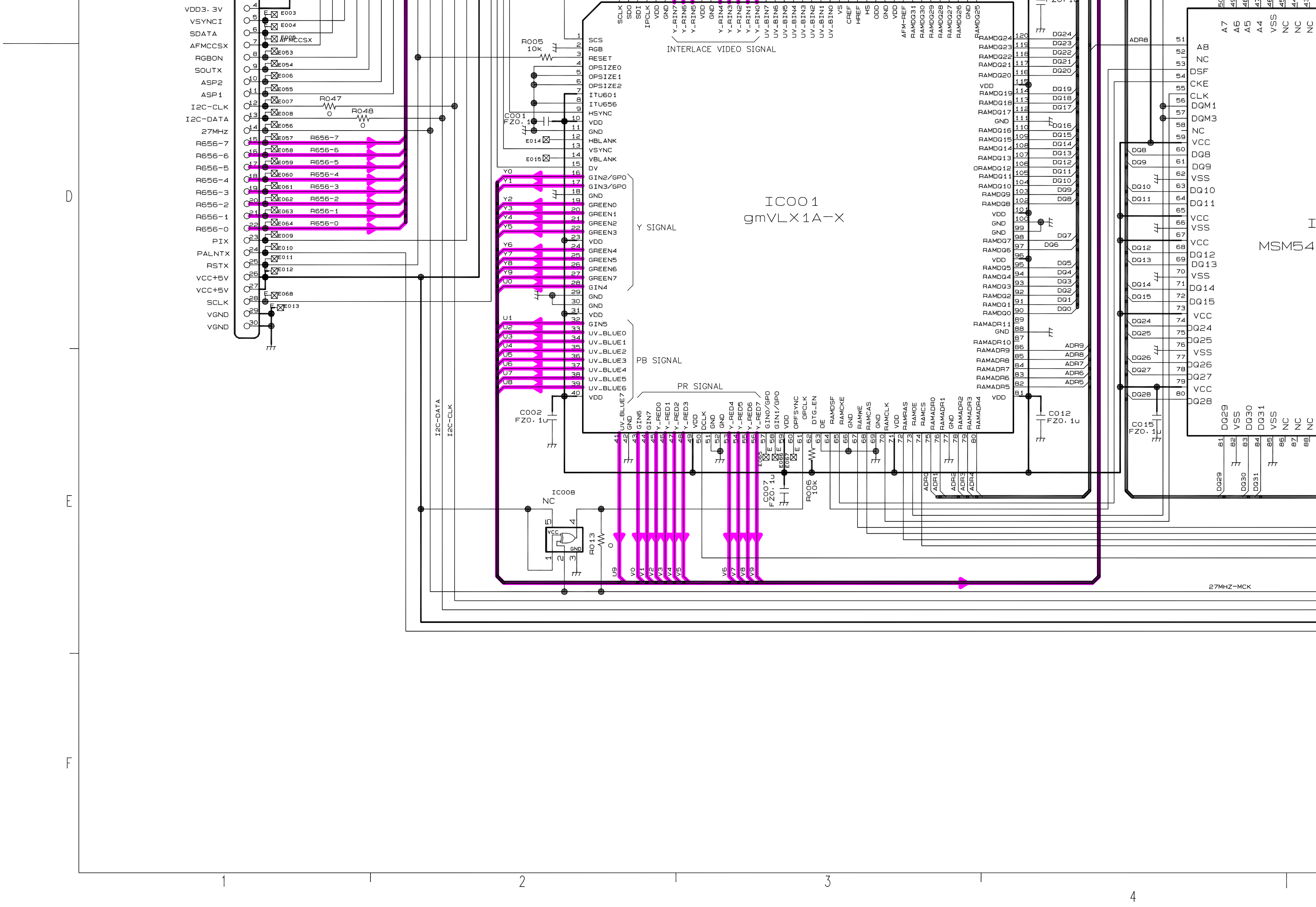
Fig. 3-5-6

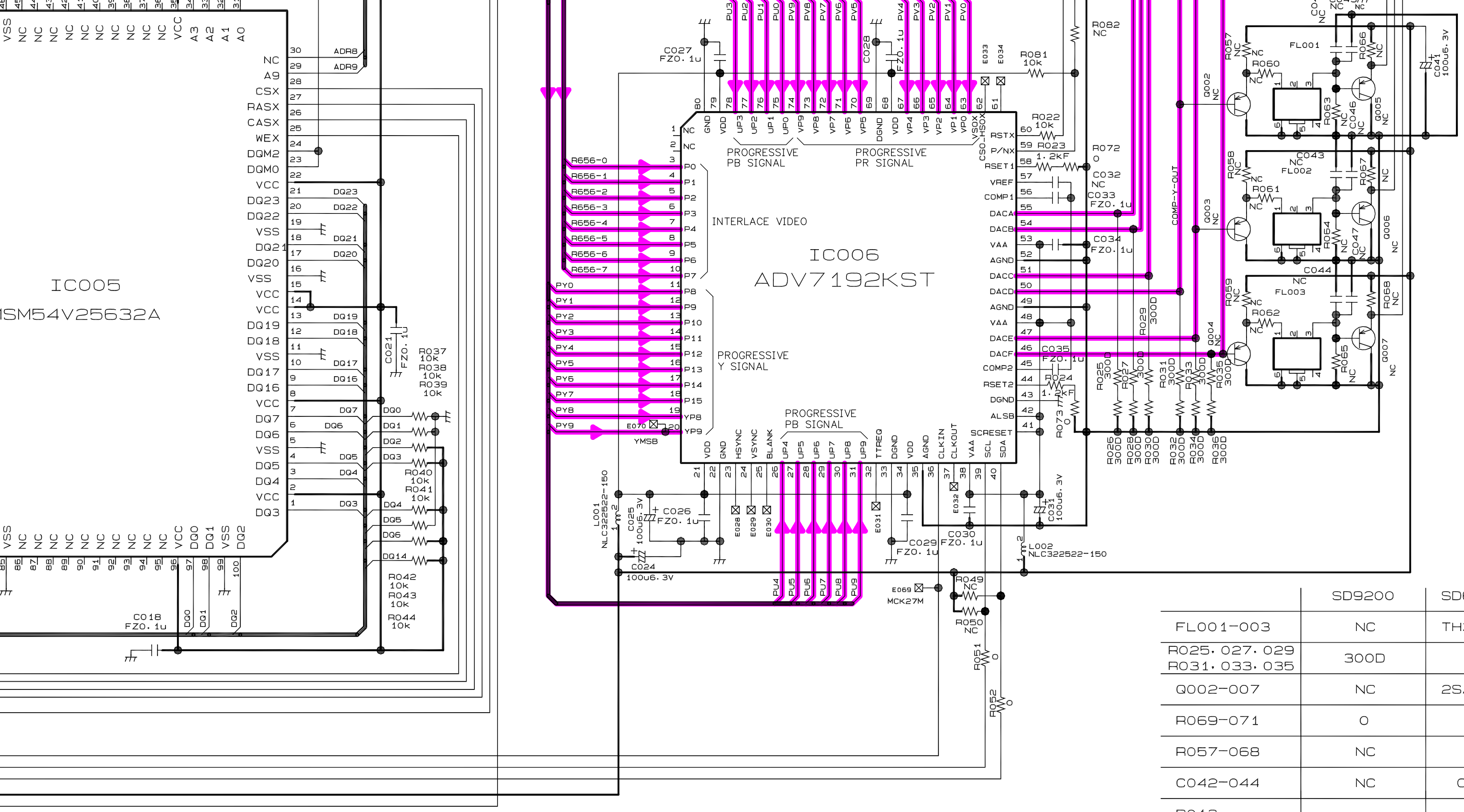
NC : NOT USED

5-4. Sub Video Circuit Diagram


1
2
3
4
A
B
C
IC003
CSX
GND
CASCX
VCC
DEX
DCLK
DATA
NC
C010
FZ0.1u
R015
1k
R016
1k
R017
1k
R018
1k
C013
FZ0.1u
R019
10k
C036
FZ0.1u
R020
10k
C014
FZ0.1u
C006
CH10p
C008
CH10p
X001
SMD-49_24MHz
IC002
gmAFMC
ADDR4
ADDR3
ADDR2
ADDR1
ADDR0
XTAL1
XTAL2
ADDR5
ADDR6
AFM_REF
VCC
SM_LEDX
AFM_LEDX
VT_LEDX
PON_LEDX
CLK
VS
TXD
RXD
RST
MOD2
MOD1
VS_SEL
SDO_VLX1
SDI_VLX1
SCK_VLX1
SCS_VLX1
/SCS
SCK
SDI
SDO
E016
E017
E018
R012
10k
E071
Q001
RN1402
@value
R080
10k
R001
R002
R003
R004
D001
D002
D003
D004
C003
FZ0.1u
C004
100u6.3V
PR SIGNAL
E019
E020
E022
E021
E023
E024
PV9
TCK
CINF_DONE
nCEO
TDO
RED9
RED8
RED7
RED6
RED5
RED4
RED3
RED2
V9
V8
V7
V6
V5
V4
V3
V2
C016
FZ0.1u
INTERLACE VIDEO SIGNAL
L003
NC
R083
R084
R085
I/P-CONVERTER
I/F
CN001
6-176313-0
DGND
DGND
VDD3.3V
VDD3.3V
VSYNCI
SDATA
AFMCCSX
E001
E002
E003
E004
E005
R053
R054
R055
R056
10k
R005
C005
100u6.3V
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
R007
R008
R009
R010
R011
C009
FZ0.1u
C011
FZ0.1u
SCLK
SDO
SDI
IPCLK
VDD
GND
Y_RIN7
Y_RIN6
Y_RIN5
Y_RIN4
Y_RIN3
Y_RIN2
Y_RIN1
Y_RIN0
UV_BIN7
UV_BIN6
UV_BIN5
UV_BIN4
UV_BIN3
UV_BIN2
UV_BIN1
UV_BIN0
VS
CREF
HREF
HS
ODD
AFM-REF
RAMDQ31
RAMDQ30
RAMDQ29
RAMDQ28
RAMDQ27
RAMDQ26
RAMDQ25
RAMDQ24
RAMDQ23
DQ31
DQ30
DQ29
DQ28
DQ27
DQ26
DQ25
DQ24
DQ23
SCS
ADR8
ADR7
ADR6
ADR5
ADR4
A7
A6
A5
A4
VSS
NC
A8
DATA
DCLK
CEX
TDI
3.3V
IHREF
GPI1
CRTVS
CRTHS
SDA
SCL
DR9
IHS
IHV
Y7
Y6
Y5
RSTX
ODD
CLK2
DEN
OEX
Y4
Y3
Y2
Y1
Y0
UV7
UV6
UV5
UV4
UV3
UV2
UV1
UV0


5
6
7
8
A
B
C
IC004
gmCP1
PR SIGNAL
PB SIGNAL
Y SIGNAL
C017
FZ0.1u
C020
FZ0.1u
C038
FZ0.1u
R021
1k
C022
FZ0.1u
C039
FZ0.1u
C023
FZ0.1u
C037
FZ0.1u
C019
FZ0.1u
C027
FZ0.1u
R045
470k
R046
0
IC007
NC
CE
Vdet
Vout
Vdd
GND
C040
100u6.3V
E025
E026
E027
PU4
PU3
PU2
PU1
PU0
PY9
PY8
PY7
PY6
PY5
PY4
PY3
PY2
PY1
PY0
Y0
Y1
Y2
Y3
Y4
Y5
Y6
DB4
VCC
DB3
DB2
DB1
DB0
GND
DG9
DG8
DG7
DG6
VCC
DG5
DG4
GND
GND
VSYNC
CLK
HSYNC
VCC
VCC
DG3
VSS
DG2
DG1
DG0
DBLANK
VCC
DSYNC
IO_RGB0
IO_RGB1
GRN2
GND
GRN3
GRN4
GRN5
CRTVS
CRTHS
SDA
SCL
DR9
VCC
VCC
DR8
DR7
DR6
DR5
DR4
DR3
DR2
GND
GND
DR1
DR0
DB9
DB8
DB7
DB6
MSEL0
MSEL1
VCC
nCONFIG
DB5
RED6
RED5
RED4
RED3
RED2
GND
GND
RED1
RED0
BLU9
BLU8
BLU7
BLU6
BLU5
VCC
VCC
BLU4
BLU3
BLU2
BLU1
BLU0
GRN9
GRN8
GRN7
TMS
nSTATUS
GRN6
PV9
PV8
PV7
PV6
PV5
PV4
PV3
PV2
PV1
PV0
PU9
PU8
PU7
PU6
PU5
VIDEO-I/F
CN002
52808-1891
RGBON
SOUTX
ASP1
ASP2
PIX
VGND
CV-OUT
VGND
Y-OUT
VGND
C-OUT
VGND
Y(I/P)G-OUT
VGND
Cb(I/P)B-OUT
VGND
Cr(I/P)R-OUT
VGND
E035
E036
E037
E038
E039
E040
E041
E042
E043
E044
E045
E046
E047
E048
E049
E050
E051
E052
CV-OUT
C-OUT
CB-OUT
CR-OUT
R069
0
R070
0
R071
0
R082
NC
R081
R057
NC
C042
NC
C045
NC
FL001
R066
NC
ADR8
ADR3
ADR2
ADR1
ADR0
VSS
NC
VCC
A3
A2
A1
A0
ADR8
E023
E024
C028
E033
E034


VDD3. 3V
VSYNCI
SDATA
AFMCCSX
RGBON
SOUTX
ASP2
ASP1
I2C-CLK
I2C-DATA
27MHz
R656-7
R656-6
R656-5
R656-4
R656-3
R656-2
R656-1
R656-0
PIX
PALNTX
RSTX
VCC+5V
VCC+5V
SCLK
VGND
VGND
R047
0
R048
0
R005
10k
C001
FZO. 1
C002
FZO. 1u
E014
E015
INTERLACE VIDEO SIGNAL
Y SIGNAL
PB SIGNAL
PR SIGNAL
IC001
gmVLX1A-X
SCS
RGB
RESET
OPSIZE0
OPSIZE1
OPSIZE2
ITU601
ITU656
HSYNC
VDD
GND
HBLANK
VSYNC
VBLANK
DV
GIN2/GPO
GIN3/GPO
GREEN0
GREEN1
GREEN2
GREEN3
GREEN4
GREEN5
GREEN6
GREEN7
GIN4
GIN5
UV_BLUE0
UV_BLUE1
UV_BLUE2
UV_BLUE3
UV_BLUE4
UV_BLUE5
UV_BLUE6
UV_BLUE7
GIN6
GIN7
Y_RED0
Y_RED1
Y_RED2
Y_RED3
Y_RED4
Y_RED5
Y_RED6
Y_RED7
DCLK
GIN0/GPO
GIN1/GPO
OPFSYNC
OPCLK
DTG_EN
DE
RAMDSF
RAMCKE
RAMWE
RAMCAS
RAMCLK
RAMRAS
RAMOE
RAMCS
RAMADR0
RAMADR1
RAMADR2
RAMADR3
RAMADR4
RAMADR5
RAMADR6
RAMADR7
RAMADR8
RAMADR9
RAMADR10
RAMADR11
RAMDQ0
RAMDQ1
RAMDQ2
RAMDQ3
RAMDQ4
RAMDQ5
RAMDQ6
RAMDQ7
RAMDQ8
RAMDQ9
RAMDQ10
RAMDQ11
RAMDQ12
RAMDQ13
RAMDQ14
RAMDQ15
RAMDQ16
RAMDQ17
RAMDQ18
RAMDQ19
RAMDQ20
RAMDQ21
RAMDQ22
RAMDQ23
RAMDQ24
RAMDQ25
RAMDQ26
RAMDQ27
RAMDQ28
RAMDQ29
RAMDQ30
RAMDQ31
AFM-REF
SCLK
SDO
SDI
IPCLK
Y_RIN7
Y_RIN6
Y_RIN5
Y_RIN4
Y_RIN3
Y_RIN2
Y_RIN1
Y_RIN0
UV_BIN7
UV_BIN6
UV_BIN5
UV_BIN4
UV_BIN3
UV_BIN2
UV_BIN1
UV_BIN0
VS
CREF
HREF
HS
ODD
C012
FZO. 1u
C007
FZO. 1u
R006
10k
C015
FZO. 1u
IC008
NC
R013
0
VCC
GND
I2C-DATA
I2C-CLK
27MHZ-MCK
ADR8
DQ8
DQ9
DQ10
DQ11
DQ12
DQ13
DQ14
DQ15
DQ24
DQ25
DQ26
DQ27
DQ28
DQ29
DQ30
DQ31
A8
NC
DSF
CKE
CLK
DQM1
DQM3
VCC
VSS
A7
A6
A5
A4
MSM54
1
2
3
4
D
E
F


IC005
MSM54V25632A
IC006
ADV7192KST
PROGRESSIVE PB SIGNAL
PROGRESSIVE PR SIGNAL
INTERLACE VIDEO
PROGRESSIVE Y SIGNAL
PROGRESSIVE PB SIGNAL
COMP-Y-OUT
FL001
FL002
FL003
Q002
Q003
Q004
Q005
Q006
Q007
L001 NLC322522-150
L002 NLC322522-150
E069 MCK27M
YMSB
D
E
F
5
6
7
8

	SD9200	SD6200
FL001-003	NC	TH354LDI
R025, 027, 029 R031, 033, 035	300D	0 27
Q002-007	NC	2SA1162Y
R069-071	0	NC
R057-068	NC	ETC
C042-044	NC	CH68p
R013	0	NC
IC008	NC	TC7SH86F

Fig. 3-5-6

NC : NOT USED

Sub Video Circuit Diagram

Part No.	Location
C001	D2
C002	E2
C003	B2
C004	C2
C005	C2
C006	B3
C007	E3
C008	B3
C009	C3
C010	A4
C011	C4
C012	E4
C013	A4
C014	B4
C015	E4
C016	C4
C017	A5
C018	E5
C019	C5
C020	A5
C021	D5
C022	A6
C023	B6
C024	E6
C025	E6
C026	E6
C027	C6
C028	C7
C029	E7
C030	E7
C031	E7
C032	D7
C035	D7
C036	B4
C037	C5
C038	A5
C039	B6
C040	C6
C041	D8
C042	C8
C043	D8
C044	D8
C045	C8
C046	D8
C047	D8
CN001	C1
CN002	C8
D001	B2
D002	B2
D003	B2
D004	B2
D033	D7
D034	D7
E001	C1
E002	C1
E003	C1
E004	C1
E005	C1
E006	D1
E007	D1
E008	D1
E009	D1
E010	D1
E011	D1
E012	D1
E013	D1
E014	D2
E015	D2
E016	B3
E017	B3
E018	B3
E019	C4
E020	C4
E021	A4
E022	C4
E024	A4
E025	C5
E026	B5
E027	B5
E028	E6
E029	E6
E030	E6
E031	E7
E032	E7
E033	C7
E034	C7
E035	C8
E036	C8
E037	C8
E038	C8
E039	C8
E040	C8
E041	C8
E042	C8
E043	C8
E044	C8
E045	C8
E046	C8
E047	C8
E048	C8
E049	C8
E050	C8
E051	C8
E052	C8
E053	D1
E054	D1
E055	D1
E056	D1
E057	D1
E058	D1
E059	D1
E060	D1
E061	D1
E062	D1
E063	D1
E064	D1
E065	E3
E066	E3
E067	E3
E068	D1
E069	E7
E070	D6
E071	B3
FL001	C8
FL002	D8
FL003	D8
IC001	D3
IC002	B3
IC003	A4
IC004	B5
IC005	D5
IC006	D7
IC007	C6
IC008	E2
L001	E6
L002	E7
L003	C1
Q001	B4
Q002	D8
Q003	D8
Q004	D8
Q005	D8
Q006	D8
Q007	D8
R001	B2
R002	B2
R003	B2
R004	B2
R005	C2
R006	E3
R007	C3
R008	C3
R009	C3
R010	C3
R011	C3
R012	B3
R013	E2
R015	A4
R016	A4
R017	A4
R018	A4
R019	B4
R020	B4
R021	A5
R022	D7
R023	D7
R024	D7
R025	D7
R026	E7
R027	D7
R028	E7
R029	D7
R030	E7
R031	D7
R032	E7
R033	D7
R034	E7
R035	D8
R036	E8
R037	D6
R038	D6
R039	D6
R040	E6
R041	E6
R042	E5
R043	E5
R044	E5
R045	B6
R046	C6
R047	D1
R048	D1
R049	E7
R050	E7
R051	E7
R052	E7
R053	C2
R054	C2
R055	C2
R056	C2
R057	C8
R058	D8
R059	D8
R060	D8
R061	D8
R062	D8
R063	D8
R064	D8
R065	D8
R066	C8
R067	D8
R068	D8
R069	C8
R070	C8
R071	C8
R072	D7
R073	D7
R080	B3
R081	C7
R082	C7
R083	C1
R084	C1
R085	C1
X001	B3

5-5. Video Output Circuit Diagram

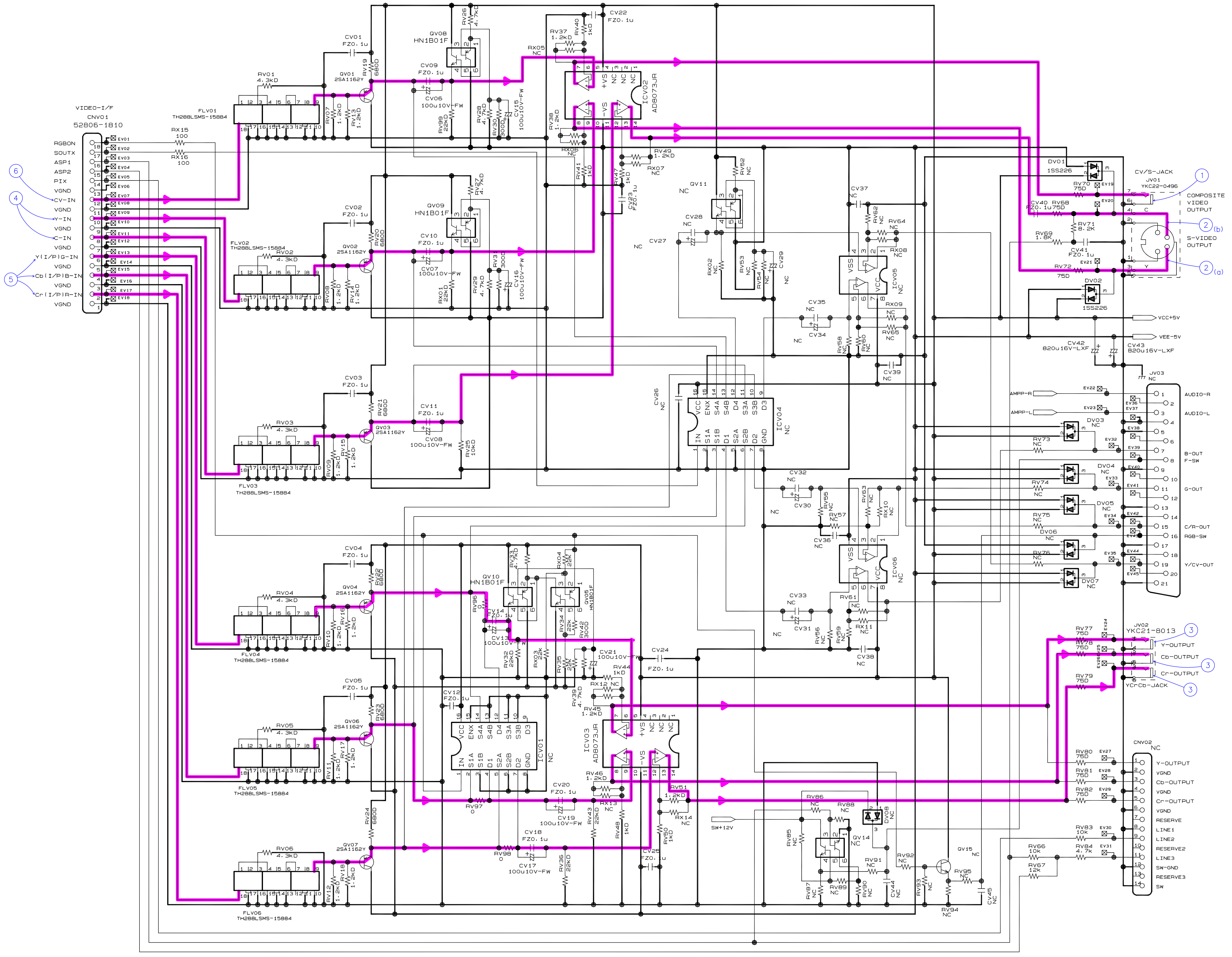
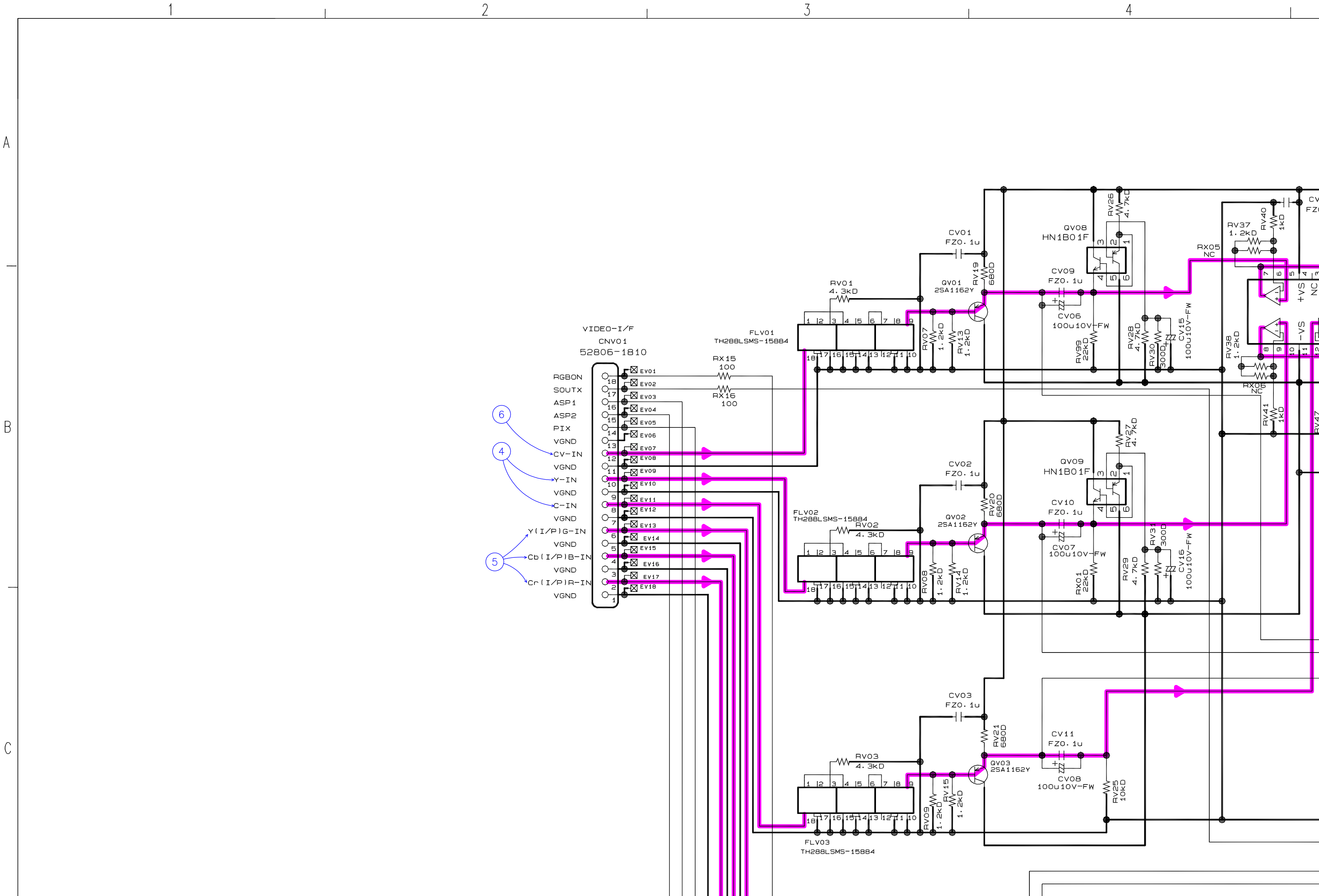

VIDEO-I/F
CNV01
52806-1810
RGBON
SOUTX
ASP1
ASP2
PIX
VGND
CV-IN
VGND
Y-IN
VGND
C-IN
VGND
Y(I/P)G-IN
VGND
Cb(I/P)B-IN
VGND
Cr(I/P)R-IN
VGND
FLV01 TH28BLSMS-15884
FLV02 TH28BLSMS-15884
FLV03 TH28BLSMS-15884
FLV04 TH28BLSMS-15884
FLV05 TH28BLSMS-15884
FLV06 TH28BLSMS-15884
QV01 2SA1162Y
QV02 2SA1162Y
QV03 2SA1162Y
QV04 2SA1162Y
QV06 2SA1162Y
QV07 2SA1162Y
QV08 HN1B01F
QV09 HN1B01F
QV10 HN1B01F
QV05 HN1B01F
QV11 NC
ICV02 AD8073JR
ICV03 AD8073JR
ICV01 NC
ICV04 NC
ICV05 NC
ICV06 NC
DV01 1SS226
DV02 1SS226
CV/S-JACK
JV01
YKC22-0496
COMPOSITE VIDEO OUTPUT
S-VIDEO OUTPUT
JV02
YKC21-8013
Y-OUTPUT
Cb-OUTPUT
Cr-OUTPUT
YCrCb-JACK
VCC+5V
VEE-5V
CV42 820u16V-LXF
CV43 820u16V-LXF
JV03 NC
AMPP-R
AMPP-L
AUDIO-R
AUDIO-L
B-OUT
F-SW
G-OUT
C/R-OUT
RGB-SW
Y/CV-OUT
CNV02 NC
Y-OUTPUT
VGND
Cb-OUTPUT
VGND
Cr-OUTPUT
VGND
RESERVE
LINE1
LINE2
RESERVE2
LINE3
SW-GND
RESERVE3
SW
SW+12V
QV15 NC
QV14 NC
①
②(b)
②(a)
③
④
⑤
⑥

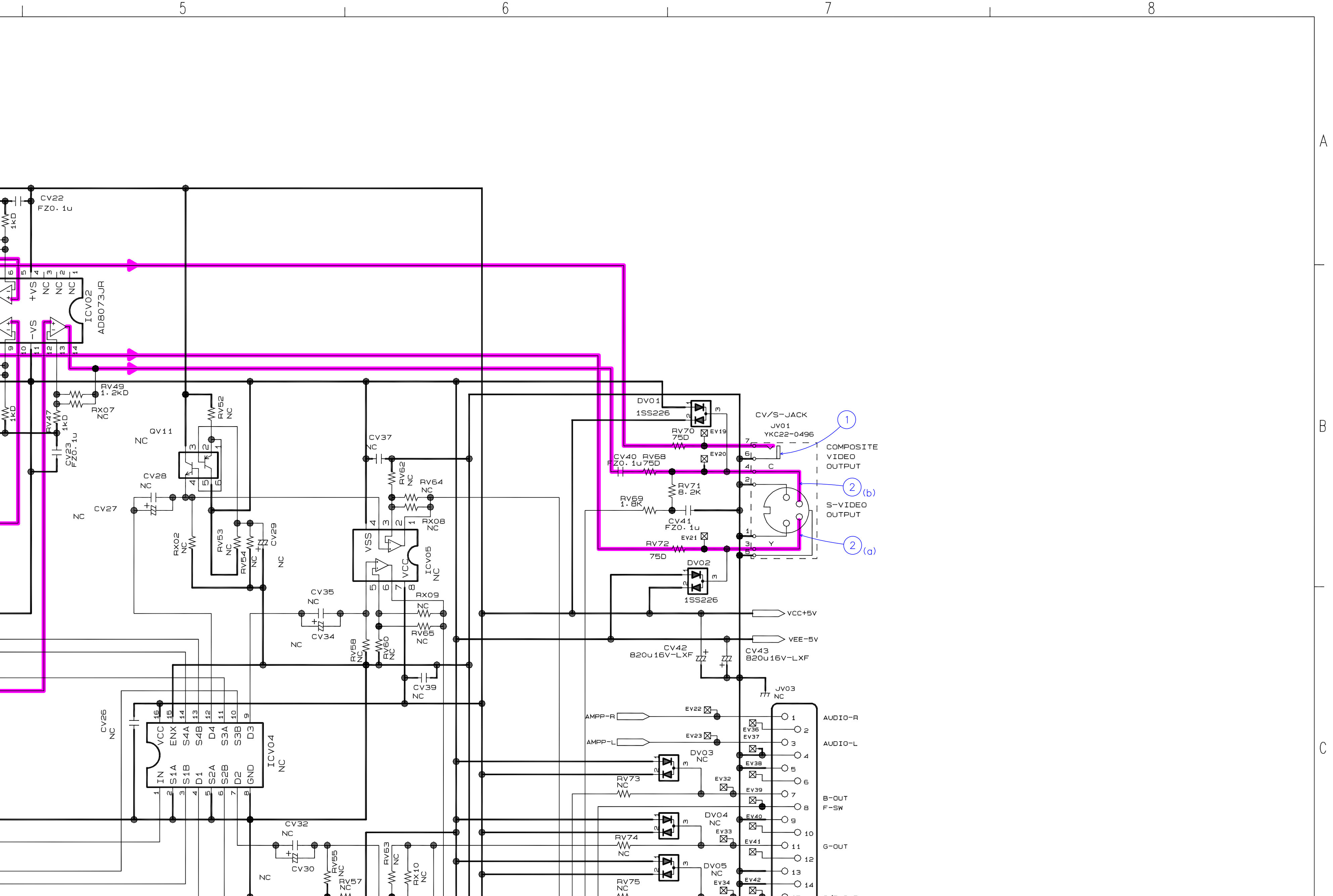
Fig. 3-5-7

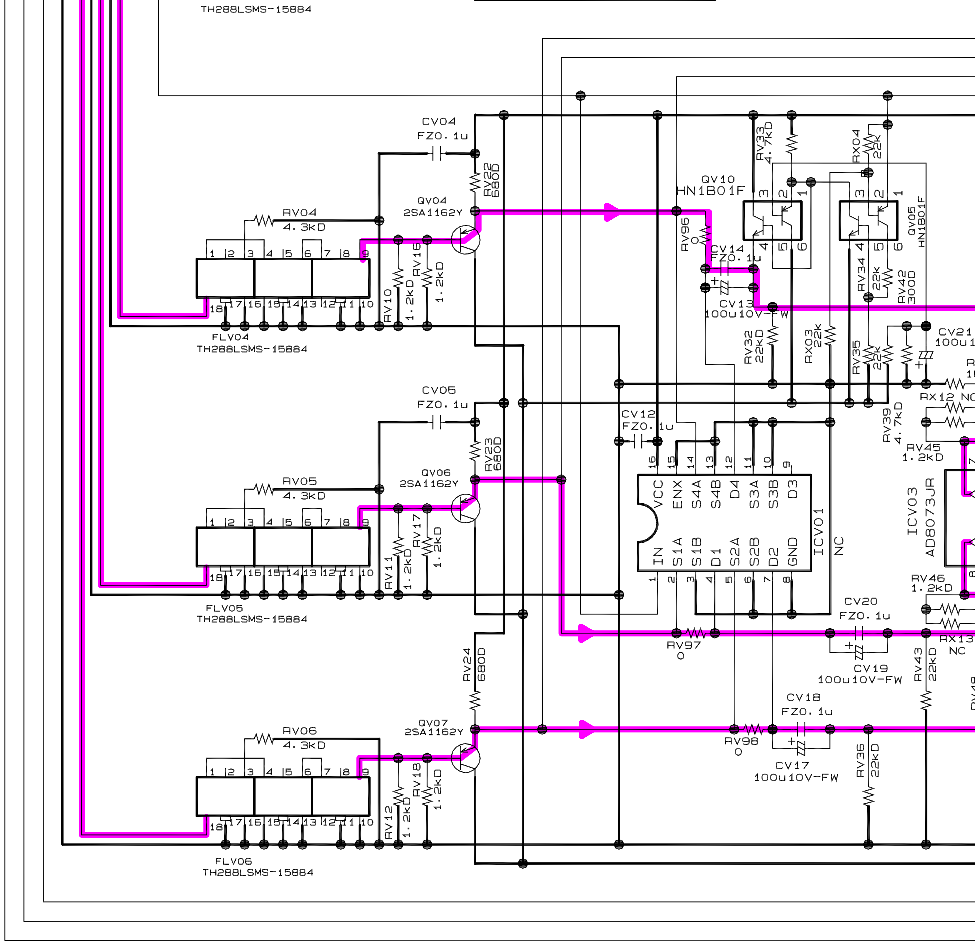
NC : NOT USED

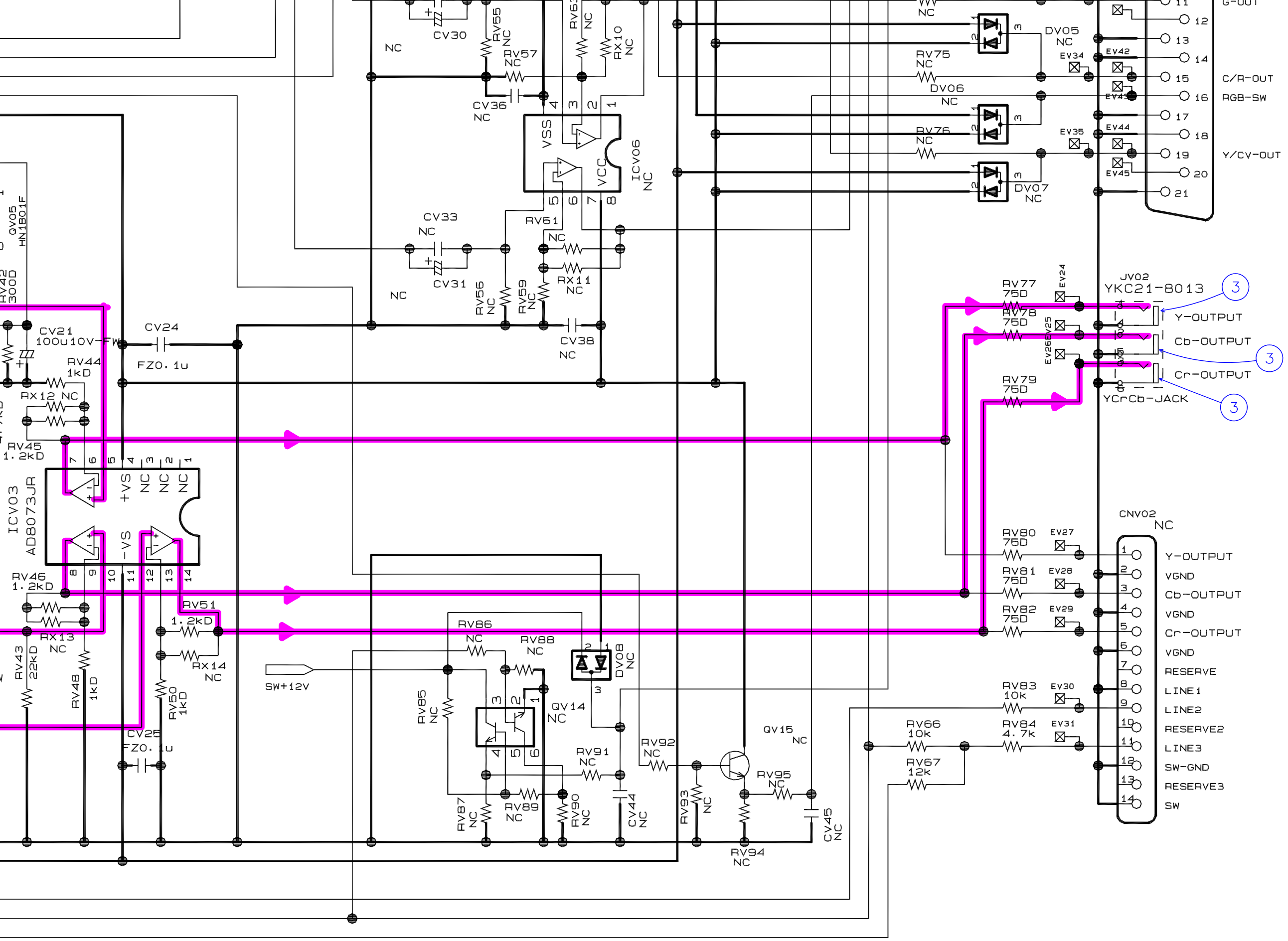
5-5. Video Output Circuit Diagram



1
2
3
4
A
B
C
VIDEO-I/F
CNV01
52806-1810
RGBON
SOUTX
ASP1
ASP2
PIX
VGND
CV-IN
VGND
Y-IN
VGND
C-IN
VGND
Y(I/P)G-IN
VGND
Cb(I/P)B-IN
VGND
Cr(I/P)R-IN
VGND
⑥
④
⑤
EV01
EV02
EV03
EV04
EV05
EV06
EV07
EV08
EV09
EV10
EV11
EV12
EV13
EV14
EV15
EV16
EV17
EV18
RX15
100
RX16
100
FLV01
TH288LSMS-15884
FLV02
TH288LSMS-15884
FLV03
TH288LSMS-15884
RV01
4.3kD
RV02
4.3kD
RV03
4.3kD
CV01
FZ0.1u
CV02
FZ0.1u
CV03
FZ0.1u
QV01
2SA1162Y
QV02
2SA1162Y
QV03
2SA1162Y
RV19
680D
RV20
680D
RV21
680D
RV07
1.2kD
RV08
1.2kD
RV09
1.2kD
RV13
1.2kD
RV14
1.2kD
RV15
1.2kD
QV08
HN1B01F
QV09
HN1B01F
RV26
4.7kD
RV27
4.7kD
CV09
FZ0.1u
CV10
FZ0.1u
CV11
FZ0.1u
CV06
100u10V-FW
CV07
100u10V-FW
CV08
100u10V-FW
RV99
22kD
RX01
22kD
RV25
10kD
RV28
4.7kD
RV29
4.7kD
RV30
300D
RV31
300D
CV15
100u10V-FW
CV16
100u10V-FW
RX05
NC
RX06
NC
RV37
1.2kD
RV38
1.2kD
RV40
1kD
RV41
1kD
RV47
+VS
-VS
NC
CV
FZ


5
6
7
8
A
B
C
CV22
FZ0.1u
1kD
+VS
-VS
NC
ICV02
AD8073JR
RV49
1.2KD
RX07
NC
RV47
1kD
CV23
FZ0.1u
QV11
NC
RV52
NC
CV28
NC
CV27
NC
RX02
NC
RV53
NC
RV54
NC
CV29
NC
CV37
NC
RV62
NC
RV64
NC
RX08
NC
VSS
VCC
ICV05
NC
RX09
NC
RV65
NC
CV35
NC
CV34
NC
RV58
NC
RV60
NC
CV39
NC
CV26
NC
VCC
ENX
S4A
S4B
D4
S3A
S3B
D3
IN
S1A
S1B
D1
S2A
S2B
D2
GND
ICV04
NC
CV32
NC
CV30
RV55
NC
RV57
NC
RV63
NC
RX10
NC
DV01
1SS226
RV70
75D
EV19
EV20
CV40
FZ0.1u
RV68
75D
RV71
8.2K
RV69
1.8K
CV41
FZ0.1u
RV72
75D
EV21
DV02
1SS226
CV/S-JACK
JV01
YKC22-0496
C
Y
COMPOSITE
VIDEO
OUTPUT
S-VIDEO
OUTPUT
1
2 (b)
2 (a)
VCC+5V
VEE-5V
CV42
820u16V-LXF
CV43
820u16V-LXF
JV03
NC
AMPP-R
AMPP-L
EV22
EV23
EV36
EV37
EV38
EV39
EV40
EV41
EV42
EV32
EV33
EV34
DV03
NC
DV04
NC
DV05
NC
RV73
NC
RV74
NC
RV75
NC
AUDIO-R
AUDIO-L
B-OUT
F-SW
G-OUT


TH288LSMS-15884
CV04
FZ0.1u
RV22
680D
QV04
2SA1162Y
RV04
4.3KD
RV10
1.2kD
RV16
1.2kD
FLV04
TH288LSMS-15884
QV10
HN1B01F
RV33
4.7kD
RX04
22k
QV05
HN1B01F
RV96
0
CV14
FZ0.1u
CV13
100u10V-FW
RV34
22k
RV42
300D
RV32
22kD
RX03
22k
RV35
22k
CV21
100u1
RX12 NC
RV39
4.7kD
RV45
1.2kD
CV05
FZ0.1u
RV23
680D
QV06
2SA1162Y
RV05
4.3KD
RV11
1.2kD
RV17
1.2kD
FLV05
TH288LSMS-15884
CV12
FZ0.1u
VCC
ENX
S4A
S4B
D4
S3A
S3B
D3
IN
S1A
S1B
D1
S2A
S2B
D2
GND
ICV01
NC
ICV03
AD8073JR
RV46
1.2kD
CV20
FZ0.1u
RV97
0
CV19
100u10V-FW
RX13
NC
RV43
22kD
RV24
680D
QV07
2SA1162Y
RV06
4.3KD
RV12
1.2kD
RV18
1.2kD
FLV06
TH288LSMS-15884
CV18
FZ0.1u
RV98
0
CV17
100u10V-FW
RV36
22kD
D
E
F
1
2
3
4


CV30
RV55 NC
RV57 NC
CV36 NC
RX10 NC
ICV06 NC
VSS
VCC
CV33 NC
CV31
RV61
RX11 NC
RV56 NC
RV59 NC
CV38 NC
QV05 HN1B01F
CV21 100u10V-FW
CV24
FZ0.1u
RV44 1kΩ
RX12 NC
RV45 1.2kΩ
ICV03 AD8073JR
+VS
-VS
RV46 1.2kΩ
RX13 NC
RV43 22kΩ
RV48 1kΩ
RV50 1kΩ
RV51 1.2kΩ
RX14 NC
CV25 FZ0.1u
SW+12V
RV86 NC
RV88 NC
DV08 NC
QV14 NC
RV85 NC
RV87 NC
RV89 NC
RV90 NC
RV91 NC
CV44 NC
RV92 NC
RV93 NC
QV15 NC
RV95 NC
RV94 NC
CV45 NC
RV75 NC
DV05 NC
DV06 NC
RV76 NC
DV07 NC
EV34
EV35
EV42
EV43
EV44
EV45
G-OUT
C/R-OUT
RGB-SW
Y/CV-OUT
11
12
13
14
15
16
17
18
19
20
21
RV77 75Ω
RV78 75Ω
RV79 75Ω
EV24
EV25
EV26
JV02
YKC21-8013
Y-OUTPUT
Cb-OUTPUT
Cr-OUTPUT
YCrCb-JACK
3
3
3
RV80 75Ω
RV81 75Ω
RV82 75Ω
RV83 10k
RV84 4.7k
RV66 10k
RV67 12k
EV27
EV28
EV29
EV30
EV31
CNV02 NC
1 Y-OUTPUT
2 VGND
3 Cb-OUTPUT
4 VGND
5 Cr-OUTPUT
6 VGND
7 RESERVE
8 LINE1
9 LINE2
10 RESERVE2
11 LINE3
12 SW-GND
13 RESERVE3
14 SW
NC

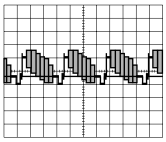
D
E
F
5
6
7
8

Fig. 3-5-7

NC : NOT USED

Video Output Circuit Diagram

① JV01 Composite video output B-7

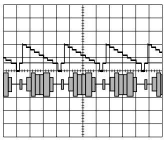


CVBS output
75Ω terminated
100% color bar

V: 500 mV/div
H: 20 μs/div

② JV01
(a) S-video output Y B-7
(b) S-video output C B-7

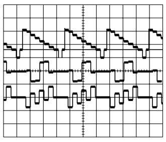
S-Y/C
75Ω terminated
100% color bar



(a) Y
(b) C
V: 500 mV/div
H: 20 μs/div

③ JV02 D-7
Interlace progressive output
Y/PB(CB)/PR(CR) output

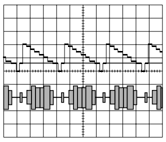
75Ω terminated
100% color bar
(Play)



Y
PB
PR
V: 500 mV/div
H: 20 μs/div / 10μs/div
(Interlace) / (Progressive)

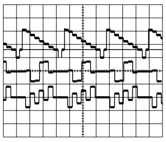
④ CNV01
(a) Pin ⑩ (Y) B-2
(b) Pin ⑧ (C) B-2

100% color bar
(Play)



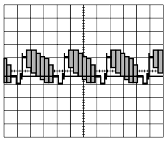
(a)
(b)
V: 0.5 V/div
H: 20 μs/div

⑤ CNV01
(a) Pin ⑥ (Y) B-2
(b) Pin ④ (PB (CB)) B-2
(c) Pin ② (PR (CR)) B-2



(a)
(b)
(c)
V: 500 mV/div
H: 20 μs/div / 10μs/div
(Interlace) / (Progressive)

⑥ CNV01 Pin ⑫ (CVBS) B-2



100% color bar

V: 500 mV/div
H: 20 μs/div

Fig. 3-5-8

ICV02
VIDEO AMP

1	-
2	-
3	-
4	5.0
5	0.2
6	0.2
7	0.4
8	0.4
9	0.2
10	0.2
11	-5.0
12	0
13	0
14	0

ICV03
VIDEO AMP

1	-
2	-
3	-
4	5.0
5	0.2
6	0.2
7	0.4
8	0
9	0
10	0
11	-5.0
12	0
13	0
14	0

QV08
DRIVER

1	-
2	-0.3
3	5.0
4	0.2
5	-
6	-5.0

QV09
DRIVER

1	-
2	-0.3
3	5.0
4	0.2
5	-
6	-5.0

QV01
BUFFER

E	1.2
C	-5.0
B	0.5

QV02
BUFFER

E	1.2
C	-5.0
B	0.5

QV03
BUFFER

E	1.3
C	-5.0
B	0.6

QV04
BUFFER

E	1.2
C	-5.0
B	0.5

QV06
BUFFER

E	1.5
C	-5.0
B	0.8

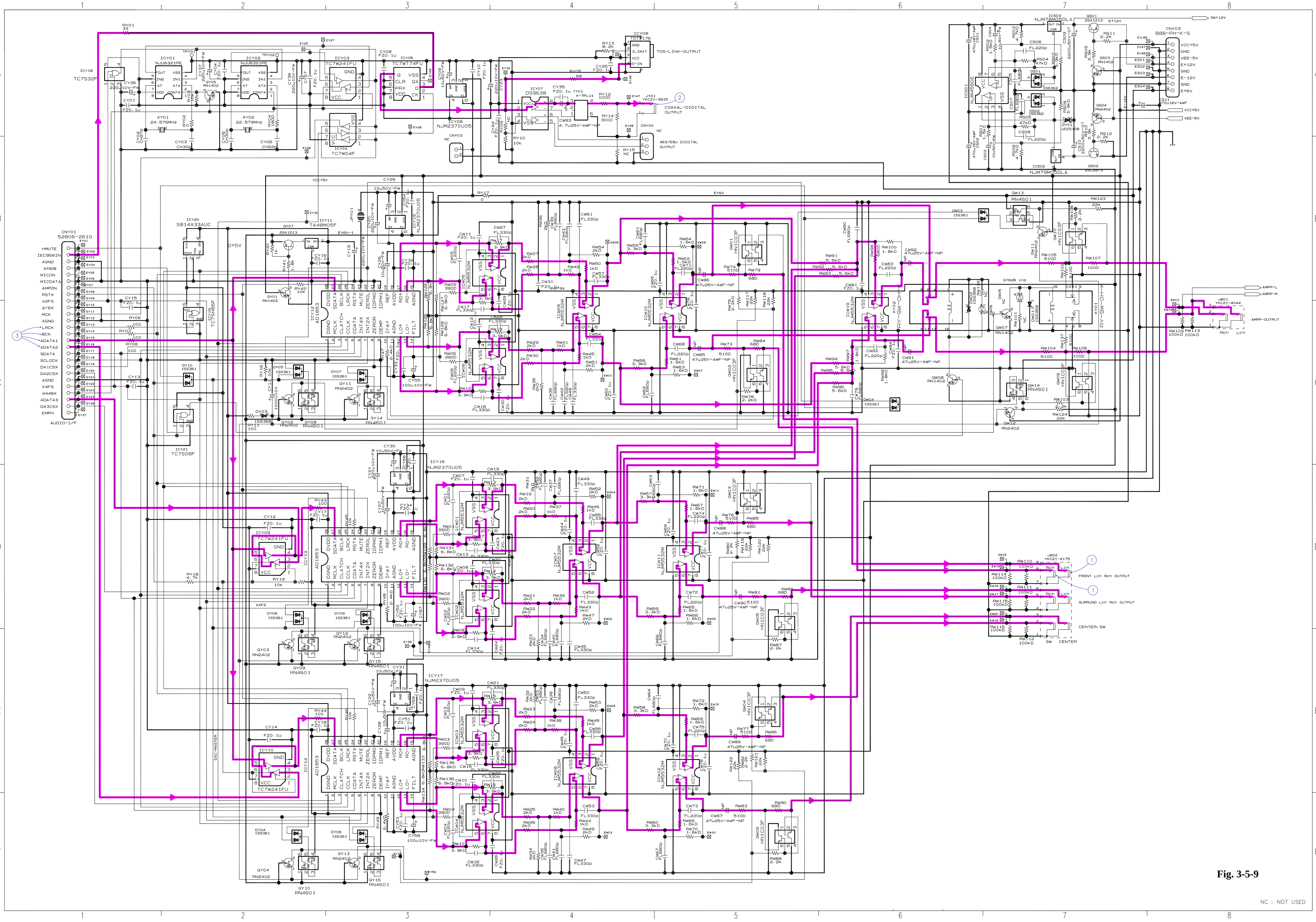
QV07
BUFFER

E	1.5
C	-5.0
B	0.8

Video Output Circuit Diagram

Part No.	Location
CNV01	B2
CNV02	D7
CV01	A3
CV02	B3
CV03	C3
CV04	D3
CV05	D3
CV06	B4
CV07	B4
CV08	C4
CV09	B4
CV10	B4
CV11	C4
CV12	D4
CV13	D4
CV14	D4
CV15	B4
CV16	B4
CV17	E4
CV18	E4
CV19	E4
CV20	E4
CV21	D5
CV22	A5
CV23	B5
CV24	D5
CV25	E5
CV26	C5
CV27	B5
CV28	B5
CV29	B5
CV30	C5
CV31	D5
CV32	C5
CV33	D5
CV34	C5
CV35	C5
CV36	D5
CV37	B6
CV38	D6
CV39	C6
CV40	B6
CV41	B7
CV42	C7
CV43	C7
CV44	E6
CV45	E6
DV01	B6
DV02	B7
DV03	C7
DV04	C7
DV05	C7
DV06	C6
DV07	D7
DV08	E6
EV01	B3
EV02	B3
EV03	B3
EV04	B3
EV05	B3
EV06	B3
EV07	B3
EV08	B3
EV09	B3
EV10	B3
EV11	B3
EV12	B3
EV13	B3
EV14	B3
EV15	B3
EV16	B3
EV17	B3
EV18	B3
EV19	B7
EV20	B7
EV21	B7
EV22	C7
EV23	C7
EV24	D7
EV25	D7
EV26	D7
EV27	D7
EV28	D7
EV29	E7
EV30	E7
EV31	E7
EV32	C7
EV33	C7
EV34	C7
EV35	D7
EV36	C7
EV37	C7
EV38	C7
EV39	C7
EV40	C7
EV41	C7
EV42	C7
EV43	D7
EV44	D7
EV45	D7
FLV01	B3
FLV02	B3
FLV03	C3
FLV04	D3
FLV05	E3
FLV06	E3
ICV01	D4
ICV02	B5
ICV03	D4
ICV04	C5
ICV05	B6
ICV06	D6
JV01	B7
JV02	D7
JV03	C7
QV01	B3
QV02	B3
QV03	C4
QV04	D3
QV05	D4
QV06	D3
QV07	E3
QV08	A4
QV09	B4
QV10	D4
QV11	B5
QV14	E6
QV15	E6
RV01	B3
RV02	B3
RV03	C3
RV04	D3
RV05	D3
RV06	E3
RV07	B3
RV08	B3
RV09	C3
RV10	D3
RV11	D3
RV12	E3
RV13	B3
RV14	B3
RV15	C3
RV16	D3
RV17	D3
RV18	E3
RV19	B4
RV20	B4
RV21	C4
RV22	D4
RV23	D4
RV24	E4
RV25	C4
RV26	A4
RV27	B4
RV28	B4
RV29	B4
RV30	B4
RV31	B4
RV32	D4
RV33	D4
RV34	D4
RV35	D4
RV36	E4
RV37	A4
RV38	B4
RV39	D4
RV40	A4
RV41	B4
RV42	D4
RV43	E4
RV44	D5
RV45	D4
RV46	E4
RV47	B5
RV48	E5
RV49	B5
RV50	E5
RV51	D6
RV51	E5
RV52	B5
RV53	B5
RV54	B5
RV55	C5
RV56	D5
RV57	C6
RV58	C6
RV59	D6
RV60	C6
RV62	B6
RV63	C6
RV64	B6
RV65	C6
RV66	E6
RV67	E6
RV68	B6
RV69	B6
RV70	B7
RV71	B7
RV72	B6
RV73	C6
RV74	C6
RV75	C6
RV76	D6
RV77	D7
RV78	D7
RV79	D7
RV80	D7
RV81	D7
RV82	E7
RV83	E7
RV84	E7
RV85	E5
RV86	E5
RV87	E5
RV88	E6
RV89	E6
RV90	E6
RV91	E6
RV92	E6
RV93	E6
RV94	E6
RV95	E6
RV96	D4
RV97	E4
RV98	E4
RV99	B4
RX01	B4
RX02	B5
RX03	D4
RX04	D4
RX05	A4
RX06	B4
RX07	B5
RX08	B6
RX09	C6
RX10	C6
RX11	D6
RX12	D5
RX13	E5
RX14	E5
RX15	B3
RX16	B3

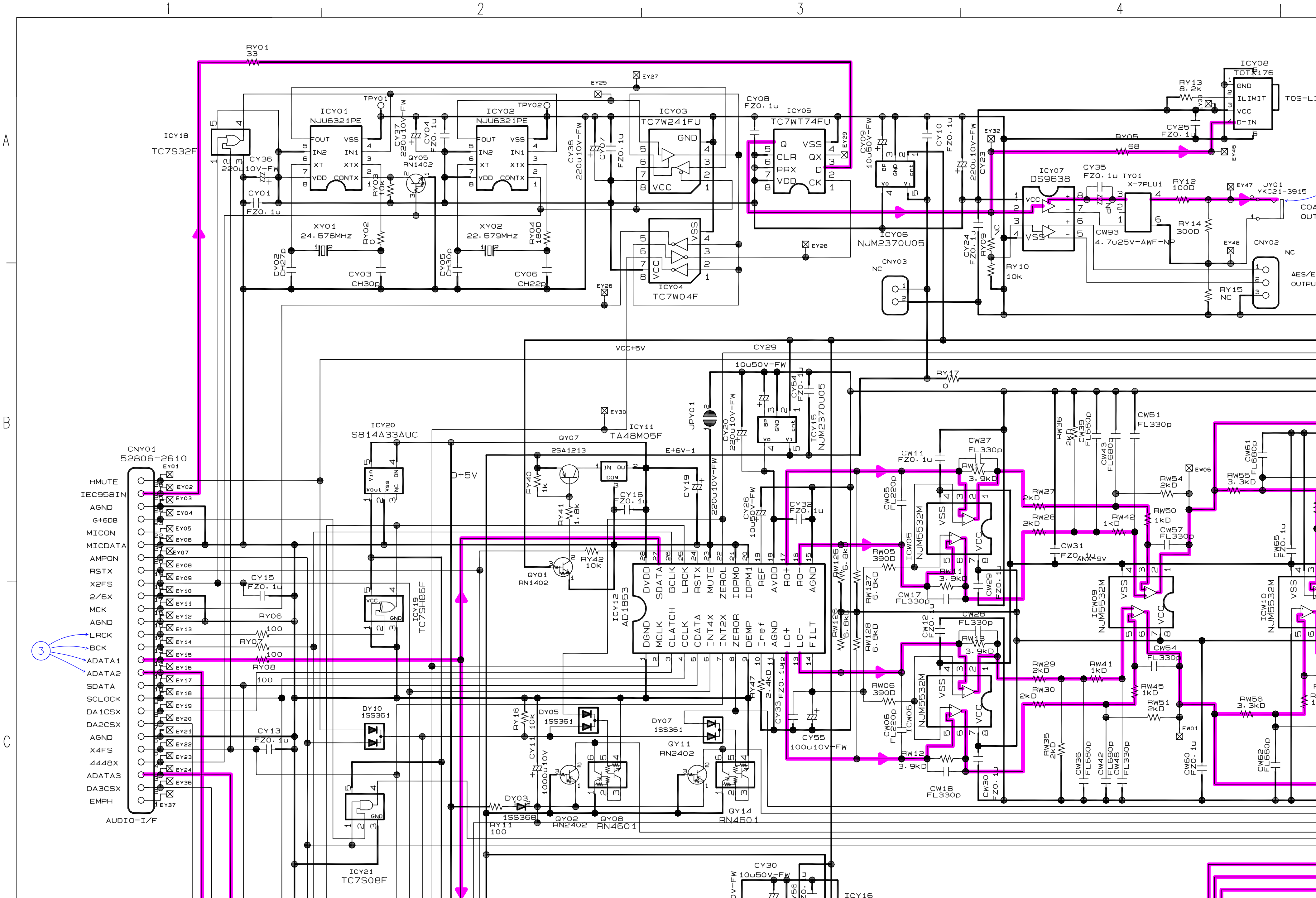
5-6. Audio Output Circuit Diagram

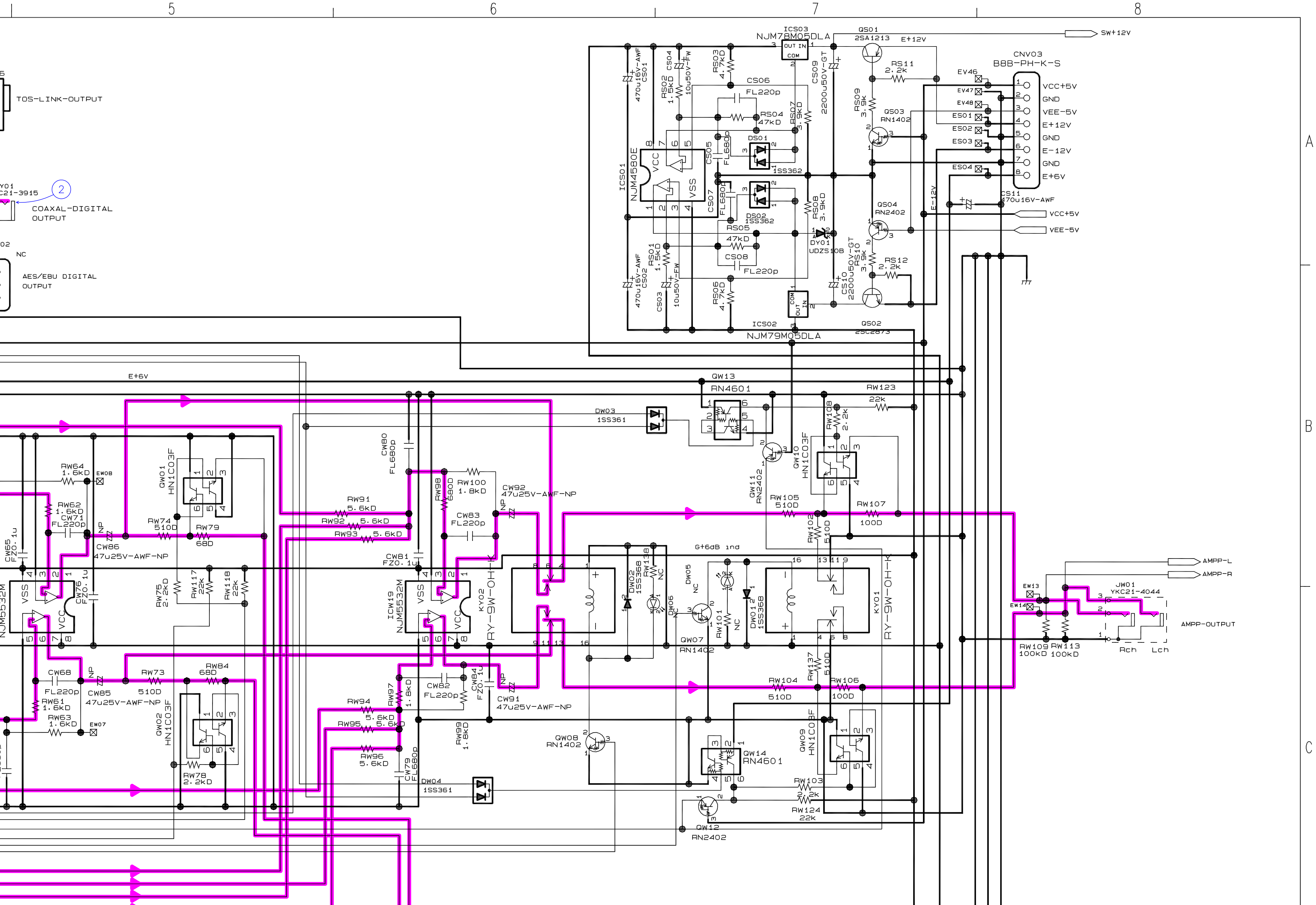


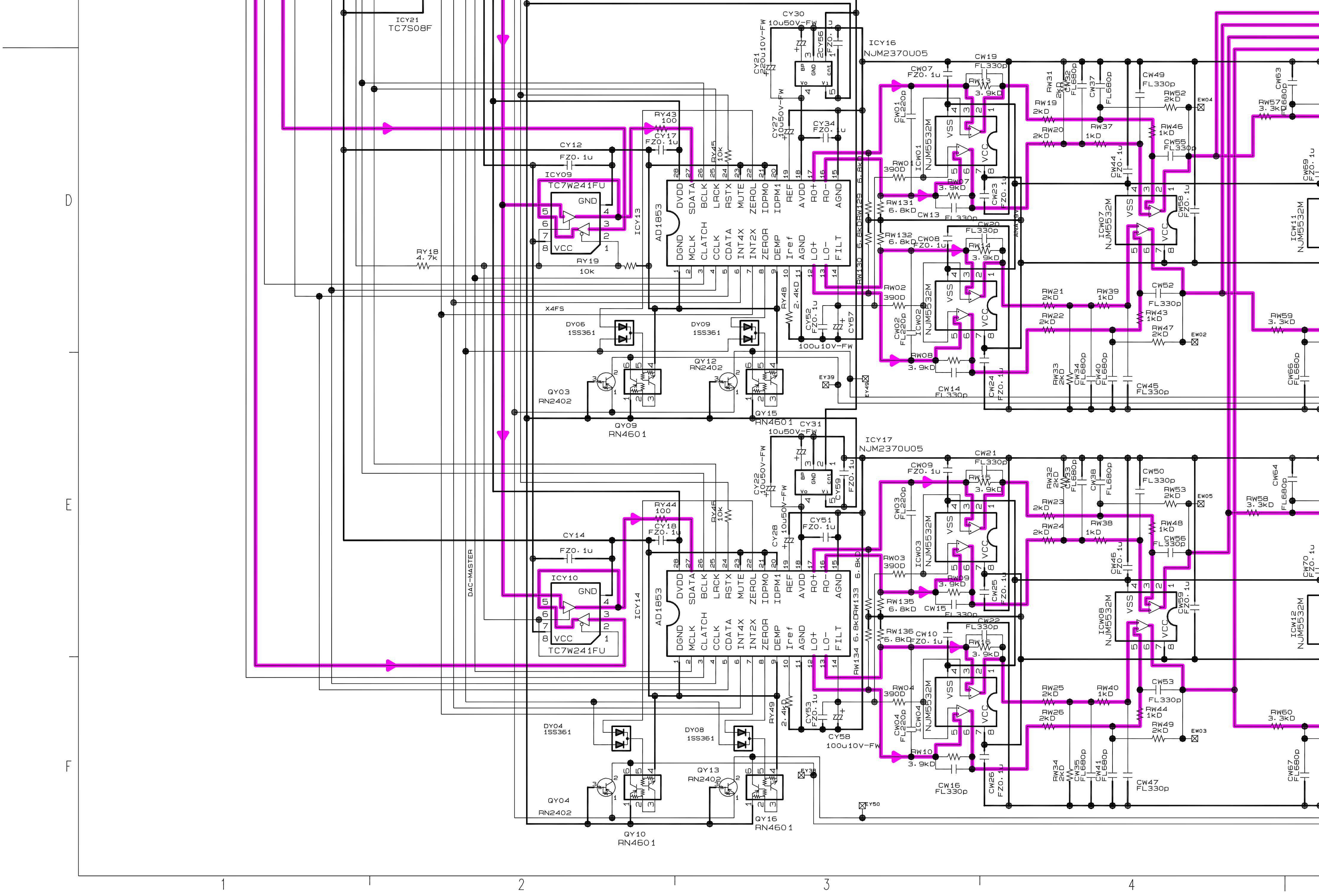
AUDIO-I/F
CNY01 52806-2610
TOS-LINK-OUTPUT
COAXAL-DIGITAL OUTPUT
AES/EBU DIGITAL OUTPUT
AMPP-OUTPUT
FRONT Lch Rch OUTPUT
SURROUND Lch Rch OUTPUT
CENTER-SW
DAC-MASTER
NC : NOT USED

Fig. 3-5-9

5-6. Audio Output Circuit Diagram


1
2
3
4
A
B
C
RY01 33
ICY18 TC7S32F
CY36 220u10V-FW
CY01 FZ0.1u
ICY01 NJU6321PE
TPY01
CY37 220u10V-FW
CY04 FZ0.1u
QY05 RN1402
RY03 10k
XY01 24.576MHz
RY02 0
CY02 CH27p
CY03 CH30p
ICY02 NJU6321PE
TPY02
XY02 22.579MHz
RY04 180
CY05 CH30p
CY06 CH22p
OUT VSS IN2 IN1 XT XTX VDD CONTX
CY38 220u10V-FW
CY07 FZ0.1u
EY25
EY27
EY26
ICY03 TC7W241FU
GND VCC
ICY04 TC7W04F
VSS VCC
CY08 FZ0.1u
ICY05 TC7WT74FU
Q VSS CLR QX PRX D VDD CK
EY29
EY28
CY09 10u50V-FW
ICY06 NJM2370U05
BP GND cnt Vo Vi
CY10 FZ0.1u
CY23 220u10V-FW
CY24 FZ0.1u
EY32
RY09 NC
RY10 10k
CNY03 NC
ICY07 DS9638
VCC VSS
CY35 FZ0.1u
TY01 X-7PLU1
CW93 4.7u25V-AWF-NP
RY05 68
RY12 100D
RY14 300D
ICY08 TOTX176
GND ILIMIT VCC D-IN
TOS-L
RY13 8.2k
EY33
EY46
CY25 FZ0.1u
EY47
JY01 YKC21-3915
COA OUT
EY48
CNY02
NC
AES/E OUTPU
RY15 NC
VCC+5V
CY29 10u50V-FW
RY17 0
CY54 FZ0.1u
ICY15 NJM2370U05
JPY01
CY20 220u10V-FW
EY30
ICY11 TA48M05F
IN OUT COM
QY07 2SA1213
E+6V-1
RY40 1k
RY41 1.8k
CY16 FZ0.1u
CY19 220u10V-FW
CY26 10u50V-FW
CY32 FZ0.1u
ICY20 S814A33AUC
Vin Vout VSS NC ON
D+5V
QY01 RN1402
RY42 10k
ICY12 AD1853
DVDD SDATA BCLK LRCK RSTX MUTE ZEROL IDPM0 IDPM1 REF AVDD RO+ RO- AGND
DGND MCLK CLATCH CCLK CDATA INT4X INT2X ZEROR DEMP Iref AGND LO+ LO- FILT
RY47 2.4kD
CY33 FZ0.1u
CY55 100u10V-FW
CNY01 52806-2610
EY01 EY02 EY03 EY04 EY05 EY06 EY07 EY08 EY09 EY10 EY11 EY12 EY13 EY14 EY15 EY16 EY17 EY18 EY19 EY20 EY21 EY22 EY23 EY24 EY36 EY37
HMUTE
IEC958IN
AGND
G+6DB
MICON
MICDATA
AMPON
RSTX
X2FS
2/6X
MCK
AGND
LRCK
BCK
ADATA1
ADATA2
SDATA
SCLOCK
DA1CSX
DA2CSX
AGND
X4FS
4448X
ADATA3
DA3CSX
EMPH
AUDIO-I/F
3
CY15 FZ0.1u
RY06 100
RY07 100
RY08 100
ICY19 TC7SH86F
VCC GND
CY13 FZ0.1u
DY10 1SS361
ICY21 TC7S08F
RY16 10k
CY11 1000u10V
DY05 1SS361
QY02 RN2402
QY08 RN4601
DY03 1SS368
RY11 100
DY07 1SS361
QY11 RN2402
QY14 RN4601
CY30 10u50V-FW
ICY16
CW11 FZ0.1u
CW27 FL330p
RW11 3.9kD
CW05 FL220p
ICW05 NJM5532M
VSS VCC
RW05 390D
RW125 6.8kD
RW127 6.8kD
RW126 6.8kD
RW128 6.8kD
RW11 3.9kD
CW17 FL330p
CW29 FZ0.1u
CW12 FZ0.1u
CW28 FL330p
RW18 3.9kD
RW06 390D
CW06 FL220p
ICW06 NJM5532M
RW12 3.9kD
CW18 FL330p
CW30 FZ0.1u
RW27 2kD
RW28 2kD
RW29 2kD
RW30 2kD
RW36 2kD
RW35 2kD
CW39 FL680p
CW43 FL680p
CW31 FZ0.1u
ANA-9V
CW51 FL330p
RW54 2kD
EW06
RW50 1kD
RW42 1kD
CW57 FL330p
ICW09 NJM5532M
RW41 1kD
RW45 1kD
RW51 2kD
CW54 FL330p
CW36 FL680p
CW42 FL680p
CW48 FL330p
EW01
CW60 FZ0.1u
CW61 FL680p
RW55 3.3kD
CW65 FZ0.1u
ICW10 NJM5532M
RW56 3.3kD
CW62 FL680p


5
6
7
8
A
B
C
TOS-LINK-OUTPUT
COAXIAL-DIGITAL
OUTPUT
②
NC
AES/EBU DIGITAL
OUTPUT
ICS03
NJM78M05DLA
OUT IN
COM
QS01
2SA1213
E+12V
SW+12V
CS01
470u16V-AWF
CS04
10u50V-FW
RS02
1.5kD
RS03
4.7kD
CS06
FL220p
RS04
47kD
RS07
3.9kD
CS09
2200u50V-GT
RS11
2.2k
RS09
3.9k
QS03
RN1402
CNV03
B8B-PH-K-S
EV46
EV47
EV48
ES01
ES02
ES03
ES04
VCC+5V
GND
VEE-5V
E+12V
GND
E-12V
GND
E+6V
ICS01
NJM4580E
VCC
VSS
CS05
FL680p
DS01
1SS362
CS07
FL680p
DS02
1SS362
RS05
47kD
CS08
FL220p
RS08
3.9kD
DY01
UDZS10B
QS04
RN2402
E-12V
CS11
470u16V-AWF
VCC+5V
VEE-5V
CS02
470u16V-AWF
CS03
10u50V-FW
RS01
1.5kD
RS06
4.7kD
CS10
2200u50V-GT
RS10
3.9k
RS12
2.2k
ICS02
NJM79M05DLA
QS02
2SC2873
E+6V
QW13
RN4601
RW123
22k
DW03
1SS361
RW108
2.2k
QW11
RN2402
QW10
HN1C03F
RW105
510D
RW107
100D
RW102
510D
CW80
FL680p
RW64
1.6kD
EW08
RW62
1.6kD
CW71
FL220p
QW01
HN1C03F
RW74
510D
RW79
68D
CW86
47u25V-AWF-NP
RW91
5.6kD
RW92
5.6kD
RW93
5.6kD
RW98
680D
RW100
1.8kD
CW83
FL220p
CW92
47u25V-AWF-NP
NP
CW65
FZ0.1u
CW76
FZ0.1u
RW75
2.2kD
RW117
22k
RW118
22k
NJM5532M
VSS
VCC
CW81
FZ0.1u
ICW19
NJM5532M
KY02
RY-9W-OH-K
G+6dB ind
DW02
1SS368
RW138
NC
DW05
NC
DW06
NC
DW012
1SS368
RW101
NC
QW07
RN1402
KY01
RY-9W-OH-K
RW137
510D
RW104
510D
RW106
100D
EW13
EW14
JW01
YKC21-4044
AMPP-L
AMPP-R
AMPP-OUTPUT
RW109
100kD
RW113
100kD
Rch
Lch
CW68
FL220p
CW85
47u25V-AWF-NP
RW73
510D
RW84
68D
RW61
1.6kD
RW63
1.6kD
EW07
QW02
HN1C03F
RW78
2.2kD
RW94
5.6kD
RW95
5.6kD
RW96
5.6kD
RW97
1.8kD
CW82
FL220p
CW84
FZ0.1u
CW91
47u25V-AWF-NP
CW79
FL680p
DW04
1SS361
RW99
1.8kD
QW08
RN1402
QW14
RN4601
QW09
HN1C03F
RW103
2.2k
RW124
22k
QW12
RN2402


ICY21
TC7S08F
CY30
10u50V-FW
CY21
220u10V-FW
CY56
FZ0.1u
ICY16
NJM2370U05
CY27
10u50V-FW
CY34
FZ0.1u
RY43
100
CY17
FZ0.1u
RY45
10k
CY12
FZ0.1u
ICY09
TC7W241FU
GND
VCC
ICY13
AD1853
DVDD
SDATA
BCLK
LRCK
RSTX
MUTE
ZEROL
IDPM0
IDPM1
REF
AVDD
RO+
RO-
AGND
DGND
MCLK
CLATCH
CCLK
CDATA
INT4X
INT2X
ZEROR
DEMP
Iref
LO+
LO-
FILT
RY18
4.7k
RY19
10k
X4FS
DY06
1SS361
DY09
1SS361
RY48
2.4kD
CY52
FZ0.1u
CY57
100u10V-FW
QY12
RN2402
QY03
RN2402
QY09
RN4601
QY15
RN4601
EY39
EY49
RW129
RW130
6.8kD
RW131
6.8kD
RW132
6.8kD
CW07
FZ0.1u
CW01
FL220p
RW01
390D
ICW01
NJM5532M
VSS
VCC
CW19
FL330p
RW13
3.9kD
RW07
3.9kD
CW13
FL330p
CW23
FZ0.1u
CW08
FZ0.1u
CW20
FL330p
RW14
3.9kD
RW02
390D
CW02
FL220p
ICW02
NJM5532M
RW08
3.9kD
CW14
FL330p
CW24
FZ0.1u
ANA 9V
RW31
2kD
CW32
FL680p
CW37
FL680p
RW19
2kD
RW20
2kD
RW37
1kD
CW49
FL330p
RW52
2kD
EW04
RW46
1kD
CW55
FL330p
CW44
FZ0.1u
ICW07
NJM5532M
CW58
FZ0.1u
RW21
2kD
RW39
1kD
CW52
FL330p
RW43
1kD
RW22
2kD
RW47
2kD
EW02
RW33
2kD
CW34
FL680p
CW40
FL680p
CW45
FL330p
CW63
FL680p
RW57
3.3kD
CW69
FZ0.1u
ICW11
NJM5532M
RW59
3.3kD
CW66
FL680p
CY31
10u50V-FW
CY22
10u50V-FW
CY59
FZ0.1u
ICY17
NJM2370U05
CY28
10u50V-FW
CY51
FZ0.1u
RY44
100
CY18
FZ0.1u
RY46
10k
CY14
FZ0.1u
ICY10
TC7W241FU
ICY14
AD1853
DAC-MASTER
RW133
RW134
6.8kD
RW135
6.8kD
RW136
6.8kD
RY49
2.4kD
CY53
FZ0.1u
CY58
100u10V-FW
DY04
1SS361
DY08
1SS361
QY13
RN2402
QY04
RN2402
QY10
RN4601
QY16
RN4601
EY38
EY50
CW09
FZ0.1u
CW03
FL220p
RW03
390D
ICW03
NJM5532M
CW21
FL330p
RW15
3.9kD
RW09
3.9kD
CW15
FL330p
CW25
FZ0.1u
CW10
FZ0.1u
CW22
FL330p
RW16
3.9kD
RW04
390D
CW04
FL220p
ICW04
NJM5532M
RW10
3.9kD
CW16
FL330p
CW26
FZ0.1u
RW32
2kD
CW33
FL680p
CW38
FL680p
RW23
2kD
RW24
2kD
RW38
1kD
CW50
FL330p
RW53
2kD
EW05
RW48
1kD
CW56
FL330p
CW46
FZ0.1u
ICW08
NJM5532M
CW59
FZ0.1u
RW25
2kD
RW40
1kD
CW53
FL330p
RW44
1kD
RW26
2kD
RW49
2kD
EW03
RW34
2kD
CW35
FL680p
CW41
FL680p
CW47
FL330p
CW64
FL680p
RW58
3.3kD
CW70
FZ0.1u
ICW12
NJM5532M
RW60
3.3kD
CW67
FL680p
D
E
F
1
2
3
4

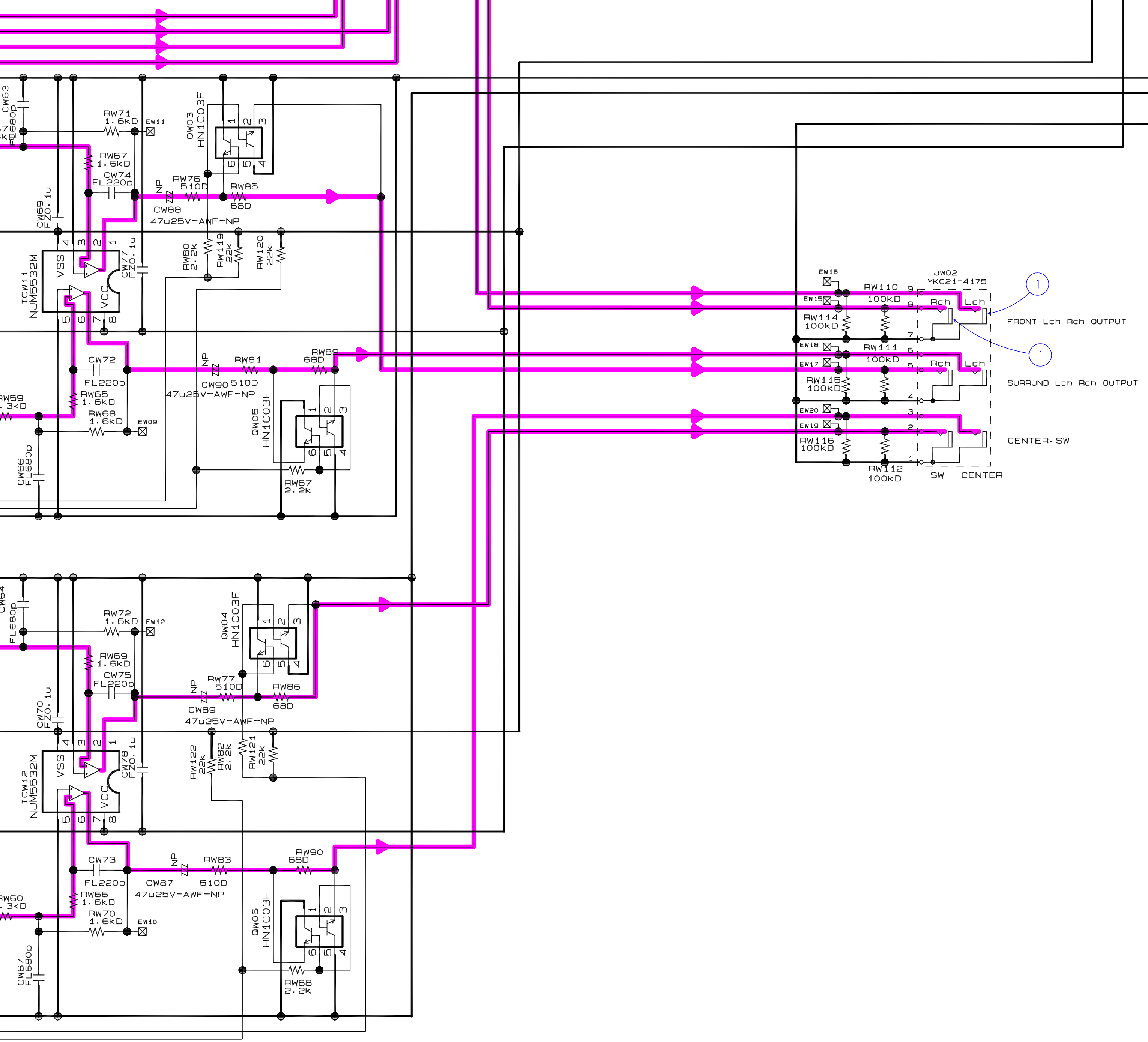
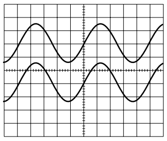

CW63
FL680p
RW71
1.6kD
EW11
QW03
HN1C03F
RW67
1.6kD
CW74
FL220p
NP
RW76
510D
RW85
68D
CW88
47u25V-AWF-NP
CW69
FZ0.1u
CW77
FZ0.1u
ICW11
NJM5532M
VSS
VCC
RW80
2.2k
RW119
22k
RW120
22k
CW72
FL220p
NP
RW81
510D
CW90
47u25V-AWF-NP
RW89
68D
RW59
3.3kD
RW65
1.6kD
RW68
1.6kD
EW09
QW05
HN1C03F
RW87
2.2k
CW66
FL680p
EW16
EW15
EW18
EW17
EW20
EW19
RW110
100kD
RW114
100kD
RW111
100kD
RW115
100kD
RW116
100kD
RW112
100kD
JW02
YKC21-4175
Rch
Lch
FRONT Lch Rch OUTPUT
SURRUND Lch Rch OUTPUT
CENTER・SW
SW
CENTER
1
CW64
FL680p
RW72
1.6kD
EW12
QW04
HN1C03F
RW69
1.6kD
CW75
FL220p
NP
RW77
510D
RW86
68D
CW89
47u25V-AWF-NP
CW70
FZ0.1u
CW78
FZ0.1u
ICW12
NJM5532M
VSS
VCC
RW122
22k
RW82
2.2k
RW121
22k
CW73
FL220p
NP
RW83
510D
CW87
47u25V-AWF-NP
RW90
68D
RW60
3.3kD
RW66
1.6kD
RW70
1.6kD
EW10
QW06
HN1C03F
RW88
2.2k
CW67
FL680p
D
E
F
5
6
7
8

Fig. 3-5-9

NC : NOT USED

Audio Output Circuit Diagram

① JW02 L ch output D-7
/ R ch output D-7
(1 kHz, FS)

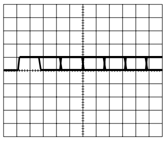


L ch output

R ch output

V: 2 V/div
H: 200 µs/div

② JY01 COAXIAL A-5
-DIGITAL OUTPUT



75Ω terminated

V: 500 mV/div
H: 0.1 µs/div

③ CNY01
(a) Pin ⑭ (LRCK) C-1
(b) Pin ⑬ (BCK) C-1
(c) Pin ⑫ (ADATA2) C-1
⑪ (ADATA1) C-1

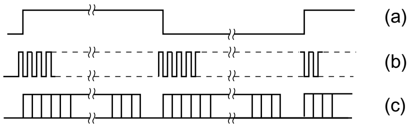


Fig. 3-5-10

ICS01
OP AMP

1	-4.1
2	-4.1
3	-4.1
4	-9.0
5	4.2
6	4.2
7	4.2
8	9.2

ICS02
REGURATOR

1	-4.1
2	-13.3
3	-9.0

ICS03
REGURATOR

1	13.2
2	4.2
3	9.2

ICW01
OP AMP

1	3.7
2	2.7
3	2.7
4	-9.0
5	2.7
6	2.7
7	3.7
8	9.2

ICW02
OP AMP

1	3.7
2	2.7
3	2.7
4	-9.0
5	2.7
6	2.7
7	3.7
8	9.2

ICW03
OP AMP

1	3.7
2	2.7
3	2.7
4	-9.0
5	2.7
6	2.7
7	3.7
8	9.2

ICW04
OP AMP

1	3.7
2	2.7
3	2.7
4	-9.0
5	2.7
6	2.7
7	3.7
8	9.2

ICW05
OP AMP

1	3.7
2	2.7
3	2.7
4	-9.0
5	2.7
6	2.7
7	3.7
8	9.2

ICW06
OP AMP

1	3.7
2	2.7
3	2.7
4	-9.0
5	2.7
6	2.7
7	3.7
8	9.2

ICW07
OP AMP

1	0
2	1.9
3	1.9
4	-9.0
5	1.9
6	1.9
7	0
8	9.2

ICW08
OP AMP

1	0
2	1.9
3	1.9
4	-9.0
5	1.9
6	1.9
7	0
8	9.2

ICW09
OP AMP

1	0
2	1.9
3	1.9
4	-9.0
5	1.9
6	1.9
7	0
8	9.2

ICW10
OP AMP

1	0
2	0
3	0
4	-9.0
5	0
6	0
7	0
8	9.2

ICW11
OP AMP

1	0
2	0
3	0
4	-9.0
5	0
6	0
7	0
8	9.2

ICW12
OP AMP

1	0
2	0
3	0
4	-9.0
5	0
6	0
7	0
8	9.2

ICW19
OP AMP

1	0
2	0
3	0
4	-9.0
5	0
6	0
7	0
8	9.2

ICY01
OSCILLATOR

1	4.9
2	2.3
3	0
4	0
5	2.4
6	4.9
7	2.5
8	4.9

ICY02
OSCILLATOR

1	0
2	0
3	0
4	0
5	1.0
6	4.9
7	2.5
8	4.9

ICY03
SWITCH

1	0
2	2.4
3	2.5
4	0
5	0.9
6	2.5
7	0
8	4.9

ICY04
INVERTOR

1	2.5
2	2.4
3	2.5
4	0
5	2.4
6	2.5
7	2.4
8	4.9

ICY05
FLIP FLOP

1	2.4
2	1.6
3	2.4
4	0
5	2.5
6	4.9
7	4.9
8	4.9

ICY06
REGURATOR

1	5.0
2	0
3	1.2
4	4.9
5	5.9

ICY07
DRIVER

1	4.9
2	2.5
3	0.4
4	0
5	4.0
6	0.1
7	1.8
8	1.8

ICY08
TOS-LINK OUT

1	0
2	2.2
3	4.9
4	2.5

ICY09
SWITCH

1	2.9
2	0
3	1.1
4	0
5	1.1
6	1.1
7	2.9
8	3.5

ICY10
SWITCH

1	2.9
2	0
3	1.1
4	0
5	1.1
6	1.1
7	2.9
8	3.5

ICY11
REGURATOR

1	5.9
2	5.0
3	0

ICY12
DAC

1	0
2	3.2
3	5.0
4	5.0
5	0
6	0
7	0
8	0
9	0
10	2.7
11	0
12	2.7
13	2.7
14	2.7
15	0
16	2.7
17	2.7
18	4.9
19	3.5
20	0
21	0
22	0
23	0
24	4.9
25	2.4
26	1.6
27	1.0
28	5.0

ICY13
DAC

1	0
2	3.2
3	5.0
4	5.0
5	0
6	0
7	0
8	0
9	0
10	2.7
11	0
12	2.7
13	2.7
14	2.7
15	0
16	2.7
17	2.7
18	4.9
19	3.5
20	0
21	0
22	0
23	0
24	4.9
25	2.4
26	1.6
27	1.0
28	5.0

ICY14
DAC

1	0
2	3.2
3	5.0
4	5.0
5	0
6	0
7	0
8	0
9	0
10	2.7
11	0
12	2.7
13	2.7
14	2.7
15	0
16	2.7
17	2.7
18	4.9
19	3.5
20	0
21	0
22	0
23	0
24	4.9
25	2.4
26	1.6
27	1.0
28	5.0

ICY15
REGURATOR

1	5.0
2	0
3	1.2
4	4.9
5	5.9

ICY16
REGURATOR

1	5.0
2	0
3	1.2
4	4.9
5	5.9

ICY17
REGURATOR

1	5.0
2	0
3	1.2
4	4.9
5	5.9

ICY18
OR GATE

1	0
2	0
3	0
4	0
5	4.9

ICY19
EX-OR GATE

1	0
2	0
3	0
4	1.6
5	3.3

ICY20
REGURATOR

1	3.5
2	0
3	0
4	5.0
5	5.0

ICY21
AND GATE

1	4.0
2	0
3	0
4	3.5
5	3.5

QW01
SWITCH

1	0
2	-9.0
3	0
4	0
5	-9.0
6	0

QW02
SWITCH

1	0
2	-9.0
3	0
4	0
5	-9.0
6	0

QW03
SWITCH

1	0
2	0.7
3	0
4	0
5	0.7
6	0

QW04
SWITCH

1	0
2	0.7
3	0
4	0
5	0.7
6	0

QW05
SWITCH

1	0
2	0.7
3	0
4	0
5	0.7
6	0

QW06
SWITCH

1	0
2	0.7
3	0
4	0
5	0.7
6	0

QW09
SWITCH

1	0
2	-9.0
3	0
4	0
5	-9.0
6	0

QW10
SWITCH

1	0
2	-9.0
3	0
4	0
5	-9.0
6	0

QW13
SWITCH

1	5.9
2	5.9
3	5.9
4	0
5	0
6	-9.0

QW14
SWITCH

1	5.9
2	5.9
3	5.9
4	0
5	0
6	-9.0

QY08
SWITCH

1	5.9
2	0
3	0
4	0
5	3.2
6	5.9

QY09
SWITCH

1	5.9
2	0
3	0
4	0
5	3.2
6	5.9

QY10
SWITCH

1	5.9
2	0
3	0
4	0
5	3.2
6	5.9

QY14
SWITCH

1	5.9
2	0
3	0
4	0
5	3.2
6	5.9

QY15
SWITCH

1	5.9
2	0
3	0
4	0
5	3.2
6	5.9

QY16
SWITCH

1	5.9
2	0
3	0
4	0
5	3.2
6	5.9

QS01
SWITCH

E	13.3
C	13.2
B	12.6

QS02
SWITCH

E	-13.5
C	-13.4
B	-12.8

QS03
SWITCH

E	0
C	0
B	5.0

QS04
SWITCH

E	0
C	0
B	-5.0

QW07
SWITCH

E	0
C	9.0
B	0

QW08
SWITCH

E	0
C	0.1
B	4.3

QW11
SWITCH

E	5.7
C	-9.0
B	5.0

QW12
SWITCH

E	5.7
C	-9.0
B	5.0

QY01
SWITCH

E	0
C	0
B	5.0

QY02
SWITCH

E	5.7
C	5.9
B	5.9

QY03
SWITCH

E	5.7
C	5.9
B	5.9

QY04
SWITCH

E	5.7
C	5.9
B	5.9

QY05
SWITCH

E	0
C	4.9
B	0

QY07
SWITCH

E	5.9
C	5.9
B	5.2

QY11
SWITCH

E	5.7
C	5.9
B	5.9

QY12
SWITCH

E	5.7
C	5.9
B	5.9

QY13
SWITCH

E	5.7
C	5.9
B	5.9

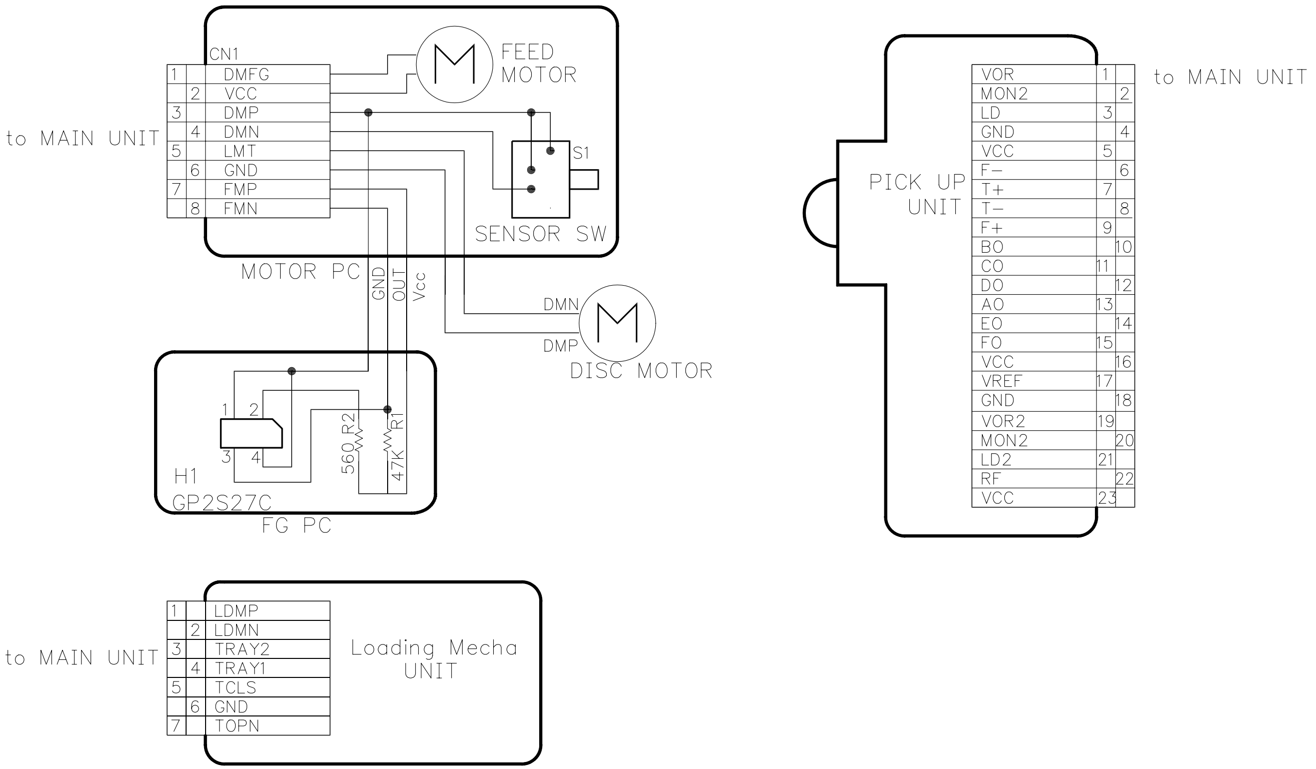
Audio Output Circuit Diagram

Part No.	Location
CNV03	A8
CNY01	B1
CNY02	A4
CNY03	A3
CS01	A6
CS02	B6
CS03	B7
CS04	A7
CS05	A7
CS06	A7
CS07	A7
CS08	A7
CS09	A7
CS10	B7
CS11	A8
CW01	D3
CW02	D3
CW03	E3
CW04	F3
CW05	B3
CW06	C3
CW07	D3
CW08	D3
CW09	E3
CW10	E3
CW11	B3
CW12	C3
CW13	D3
CW14	E3
CW15	E3
CW16	F3
CW17	C3
CW18	C3
CW19	D4
CW20	D4
CW21	E4
CW22	E4
CW23	D4
CW24	E4
CW25	E4
CW26	F4
CW27	B4
CW28	C4
CW29	C4
CW30	C4
CW31	B4
CW32	D4
CW33	E4
CW34	E4
CW35	F4
CW36	C4
CW37	D4
CW38	E4
CW39	B4
CW40	E4
CW41	F4
CW42	C4
CW43	B4
CW44	D4
CW45	E4
CW46	E4
CW47	F4
CW48	C4
CW49	D4
CW50	E4
CW51	B4
CW52	D4
CW53	F4
CW54	C4
CW55	D4
CW56	E4
CW57	B4
CW58	D4
CW59	E4
CW60	C4
CW61	B4
CW62	C4
CW63	D4
CW64	E4
CW65	B4
CW66	E5
CW67	F5
CW68	C5
CW69	D5
CW70	E5
CW71	B5
CW72	D5
CW73	F5
CW74	D5
CW75	E5
CW76	C5
CW77	D5
CW78	E5
CW79	C6
CW80	B6
CW81	B6
CW82	C6
CW83	B6
CW84	C6
CW85	C5
CW86	B5
CW87	F5
CW88	D5
CW89	E5
CW90	D5
CW91	C6
CW92	B6
CW93	A4
CY01	A1
CY02	B1
CY03	B2
CY04	A2
CY05	B2
CY06	B2
CY07	A2
CY08	A3
CY09	A3
CY10	A3
CY11	C2
CY12	D2
CY13	C1
CY14	E2
CY15	B1
CY16	B2
CY17	D2
CY18	E2
CY19	B3
CY20	B3
CY21	D3
CY22	E3
CY23	A4
CY24	A4
CY25	A4
CY26	B3
CY27	D3
CY28	E3
CY29	B3
CY30	C3
CY31	E3
CY32	B3
CY33	C3
CY34	D3
CY35	A4
CY36	A1
CY37	A2
CY38	A2
CY51	E3
CY52	D3
CY53	F3
CY54	B3
CY55	C3
CY57	D3
CY58	F3
CY59	E3
DS01	A7
DS02	A7
DW01	C7
DW02	B6
DW03	B6
DW04	C6
DW05	B7
DW06	C7
DY01	A7
DY03	C2
DY04	F2
DY05	C2
DY06	D2
DY07	C3
DY08	F3
DY09	D3
DY10	C2
ES01	A7
ES02	A7
ES03	A7
ES04	A7
EV46	A7
EV47	A7
EV48	A7
EW01	C4
EW02	D4
EW03	F4
EW04	D4
EW05	E4
EW06	B4
EW07	C5
EW08	B5
EW09	D5
EW10	F5
EW11	D5
EW12	E5
EW13	B8
EW14	C8
EW15	D7
EW16	D7
EW17	D7
EW18	D7
EW19	D7
EW20	D7
EY01	B1
EY02	B1
EY03	B1
EY04	B1
EY05	B1
EY06	B1
EY07	B1
EY08	B1
EY09	B1
EY10	C1
EY11	C1
EY12	C1
EY13	C1
EY14	C1
EY15	C1
EY16	C1
EY17	C1
EY18	C1
EY19	C1
EY20	C1
EY21	C1
EY22	C1
EY23	C1
EY24	C1
EY25	A2
EY26	B2
EY27	A3
EY28	A3
EY29	A3
EY30	B2
EY32	A4
EY33	A4
EY36	C1
EY37	C1
EY38	F3
EY39	E3
EY46	A4
EY47	A4
EY48	A4
EY49	E3
EY50	F3
ICS01	A6
ICS02	B7
ICS03	A7
ICW01	D3
ICW02	D3
ICW03	E3
ICW04	F3
ICW05	B3
ICW06	C3
ICW07	D4
ICW08	E4
ICW09	C4
ICW10	C4
ICW11	D5
ICW12	E5
ICW19	C6
ICY01	A2
ICY02	A2
ICY03	A3
ICY04	B3
ICY05	A3
ICY06	A3
ICY07	A4
ICY08	A4
ICY09	D2
ICY10	E2
ICY11	B2
ICY12	C2
ICY13	D2
ICY14	E2
ICY15	B3
ICY16	C3
ICY17	E3
ICY18	A1
ICY19	C2
ICY20	B2
ICY21	C2
JPY01	B3
JW01	B8
JW02	D7
JY01	A4
KY01	C7
KY02	C6
QS01	A7
QS02	B7
QS03	A7
QS04	A7
QW01	B5
QW02	C5
QW03	D5
QW04	E5
QW05	D5
QW06	F5
QW07	C7
QW08	C6
QW09	C7
QW10	B7
QW11	B7
QW12	C7
QW13	B7
QW14	C7
QY01	B2
QY02	C2
QY03	E2
QY04	F2
QY05	A2
QY07	B2
QY08	C2
QY09	E2
QY10	F2
QY11	C3
QY12	E3
QY13	F3
QY14	C3
QY15	E3
QY16	F3
RS01	A6
RS02	A7
RS03	A7
RS04	A7
RS05	A7
RS06	B7
RS07	A7
RS08	A7
RS09	A7
RS10	A7
RS11	A7
RS12	A7
RW01	D3
RW02	D3
RW03	E3
RW04	F3
RW05	B3
RW06	C3
RW07	D3
RW08	E3
RW09	E3
RW10	F3
RW11	B3
RW12	C3
RW13	D4
RW14	D4
RW15	E4
RW16	E4
RW17	B4
RW18	C4
RW19	D4
RW20	D4
RW21	D4
RW22	D4
RW23	E4
RW24	E4
RW25	F4
RW26	F4
RW27	B4
RW28	B4
RW29	C4
RW30	C4
RW31	D4
RW32	E4
RW33	E4
RW34	F4
RW35	C4
RW36	B4
RW37	D4
RW38	E4
RW39	D4
RW40	F4
RW41	C4
RW42	B4
RW43	D4
RW44	F4
RW45	C4
RW46	D4
RW47	D4
RW48	E4
RW49	F4
RW50	B4
RW51	C4
RW52	D4
RW53	E4
RW54	B4
RW55	B4
RW56	C4
RW57	D4
RW58	E4
RW59	D4
RW60	F4
RW61	C5
RW62	B5
RW63	C5
RW64	B5
RW65	D5
RW66	F5
RW67	D5
RW68	D5
RW69	E5
RW70	F5
RW71	D5
RW72	E5
RW73	C5
RW74	B5
RW75	C5
RW76	D5
RW77	E5
RW78	C5
RW79	B5
RW80	D5
RW81	D5
RW82	E5
RW83	F5
RW84	C5
RW85	D5
RW86	E5
RW87	E5
RW88	F5
RW89	D5
RW90	F5
RW91	B6
RW92	B6
RW93	B6
RW94	C6
RW95	C6
RW96	C6
RW97	C6
RW98	B6
RW99	C6
RW100	B6
RW101	C7
RW102	B7
RW103	C7
RW104	C7
RW105	B7
RW106	C7
RW107	B7
RW108	B7
RW109	C8
RW110	D7
RW111	D7
RW112	E7
RW113	C8
RW114	D7
RW115	D7
RW116	D7
RW117	B5
RW118	B5
RW119	D5
RW120	D5
RW121	E5
RW122	E5
RW123	B7
RW124	C7
RW125	B3
RW126	C3
RW127	B3
RW128	C3
RW130	D3
RW131	D3
RW132	D3
RW133	E3
RW134	E3
RW135	E3
RW136	E3
RW137	C7
RW138	B6
RY01	A1
RY02	A2
RY03	A2
RY04	A2
RY05	A4
RY06	C1
RY07	C1
RY08	C1
RY09	A4
RY10	B4
RY11	C2
RY12	A4
RY13	A4
RY14	A4
RY15	B4
RY16	C2
RY17	B3
RY18	D2
RY19	D2
RY40	B2
RY41	B2
RY42	B2
RY43	D2
RY44	E2
RY45	D3
RY46	E3
RY47	C3
RY48	D3
RY49	F3
TPY01	A2
TPY02	A2
TY01	A4
XY01	A2
XY02	A2

1 2 3 4 5 6 7 8 9 10

A B C D E F G

5-7. Motor System Circuit Diagram


CN1
1 DMFG
2 VCC
3 DMP
4 DMN
5 LMT
6 GND
7 FMP
8 FMN
to MAIN UNIT
FEED MOTOR
S1
SENSOR SW
MOTOR PC
GND
OUT
Vcc
DMN
DMP
DISC MOTOR
1 2
3 4
H1
GP2S27C
560 R2
47K R1
FG PC
1 LDMP
2 LDMN
3 TRAY2
4 TRAY1
5 TCLS
6 GND
7 TOPN
to MAIN UNIT
Loading Mecha UNIT
PICK UP UNIT
VOR 1
MON2 2
LD 3
GND 4
VCC 5
F− 6
T+ 7
T− 8
F+ 9
BO 10
CO 11
DO 12
AO 13
EO 14
FO 15
VCC 16
VREF 17
GND 18
VOR2 19
MON2 20
LD2 21
RF 22
VCC 23
to MAIN UNIT

Part No.	Loca-tion
CN1	B3
R1	D4
R2	D3
S1	C4

Fig. 3-5-11

6. PC BOARDS

6-1. Power Supply PC Board

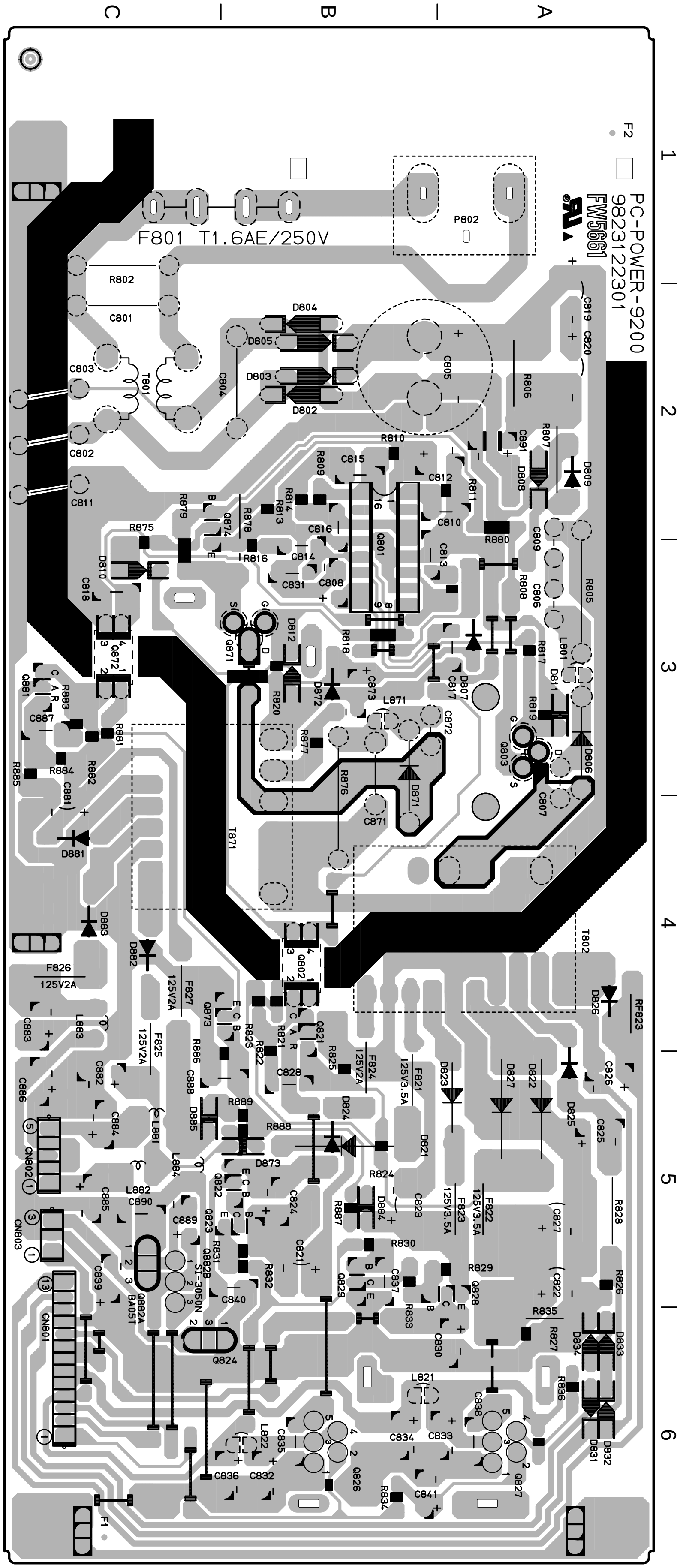

A
B
C
1
2
3
4
5
6
F801 T1.6AE/250V
PC-POWER-9200
982312301
FW561
P802
R802
C801
C803
T801
C802
C811
D804
D805
D803
D802
C805
R806
R810
Q801
R880
Q871
Q803
Q872
Q881
T871
L871
D881
D883
D882
F826
125V2A
F827
F825
T802
Q802
RF823
CN802
CN803
CN801
Q882A
Q882B
ST-3050N
BA05T
Q824
Q826
Q827
L821
L822
F821
125V3.5A
F822
F823
F824
F1
F2

Fig. 3-6-1 EU02 Power Supply PC Board (Bottom side)

Part No.	Loca- tion	Part No.	Loca- tion
C801	C2	F001	C6
C802	C2	F002	A1
C803	C2	F801	B1
C804	B2	F821	B4
C805	B2	F822	A5
C806	A3	F823	A5
C807	A3	F824	B4
C808	B3	F825	C4
C809	A3	F826	C4
C810	B2	F827	C4
C811	C2	L801	A3
C812	A2	L821	B6
C813	B3	L822	B6
C814	B3	L871	B3
C815	B2	L881	C5
C816	B2	L882	C5
C817	A3	L883	C4
C818	C3	L884	C5
C819	A2	P802	A1
C820	A2	Q801	B3
C821	B5	Q802	B4
C822	A5	Q803	A3
C823	B5	Q821	B4
C824	B5	Q822	B5
C825	A5	Q823	B5
C826	A5	Q824	C6
C827	A5	Q826	B6
C828	B5	Q827	A6
C830	A6	Q828	A5
C831	B3	Q829	B5
C832	B6	Q871	B3
C833	A6	Q872	C3
C834	B6	Q873	B4
C835	B6	Q874	C2
C836	B6	Q881	C3
C837	B5	Q882A	C5
C838	A6	Q882B	C5
C839	C5	R802	C1
C840	C5	R805	A2
C841	B6	R806	A2
C871	B3	R807	A2
C872	B3	R808	A2
C873	B3	R809	B2
C881	C4	R810	B2
C882	C5	R811	B2
C883	C4	R813	B2
C884	C5	R814	B2
C885	C5	R816	B3
C886	C5	R817	A3
C887	C3	R818	B3
C888	C5	R819	A3
C889	C5	R820	B3
C890	C5	R821	B4
C891	A2	R822	B4
CN801	C6	R823	B4
CN802	C5	R824	B5
CN803	C5	R825	B5
D802	B2	R826	A5
D803	B2	R827	A6
D804	B2	R828	A5
D805	B2	R829	B5
D806	A3	R830	B5
D807	A3	R831	B5
D808	A2	R832	B5
D809	A2	R833	B5
D810	C3	R834	B6
D811	A3	R835	A6
D812	B3	R836	A6
D821	B5	R875	C3
D822	A5	R876	B3
D823	A5	R877	B3
D824	B5	R878	B2
D825	A4	R879	C2
D826	A4	R880	A2
D827	A5	R881	C3
D831	A6	R882	C3
D832	A6	R883	C3
D833	A6	R884	C3
D834	A6	R885	C3
D871	B3	R886	C5
D872	B3	R887	B5
D873	B5	R888	B5
D881	C4	R889	B5
D882	C4	RF823	A4
D883	C4	T801	C2
D884	B5	T802	A4
D885	C5	T871	C4

6-2. Power Switch PC Board

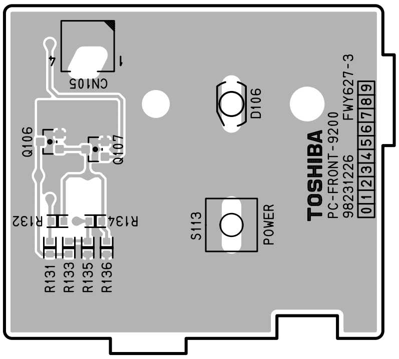

CN105
4
1
Q106
Q107
R132
R134
R131
R133
R135
R136
D106
S113
POWER
TOSHIBA
PC-FRONT-9200
98231226
FWY627-3
0123456789

Fig. 3-6-2 EU04
Power Switch PC Board
(Top side)

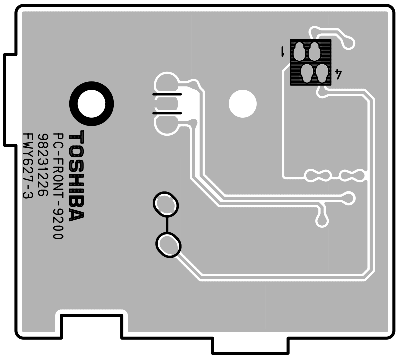

1
4
TOSHIBA
PC-FRONT-9200
98231226
FWY627-3

Fig. 3-6-3 EU04
Power Switch PC Board
(Bottom side)

6-3. Sub Video PC Board

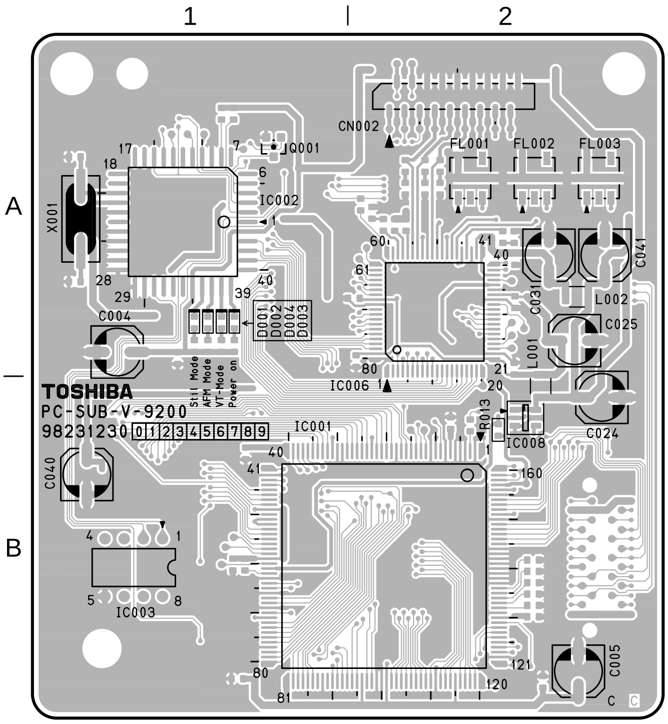

1
2
A
B
CN002
Q001
FL001
FL002
FL003
IC002
X001
17
18
7
6
28
29
40
39
C004
D001
D002
D004
D003
60
61
41
40
80
21
20
IC006
C031
C041
L002
C025
L001
R013
IC008
C024
TOSHIBA
PC-SUB-V-9200
98231230
0123456789
Still Mode
AFM Mode
VT-Mode
Power on
IC001
C040
160
121
120
81
IC003
C005
C

Fig. 3-6-4 EU16
Sub Video PC Board (Top side)

Part No.	Location
C004	A1
C005	B2
C024	B2
C025	A2
C031	A2
C040	B1
C041	A2
CN002	A2
D001	A1
D002	A1
D003	A1
D004	A1
FL001	A2
FL002	A2
FL003	A2
IC001	B2
IC002	A1
IC003	B1
IC006	A2
IC008	B2
L001	B2
L002	A2
Q001	A1
R013	B2
X001	A1

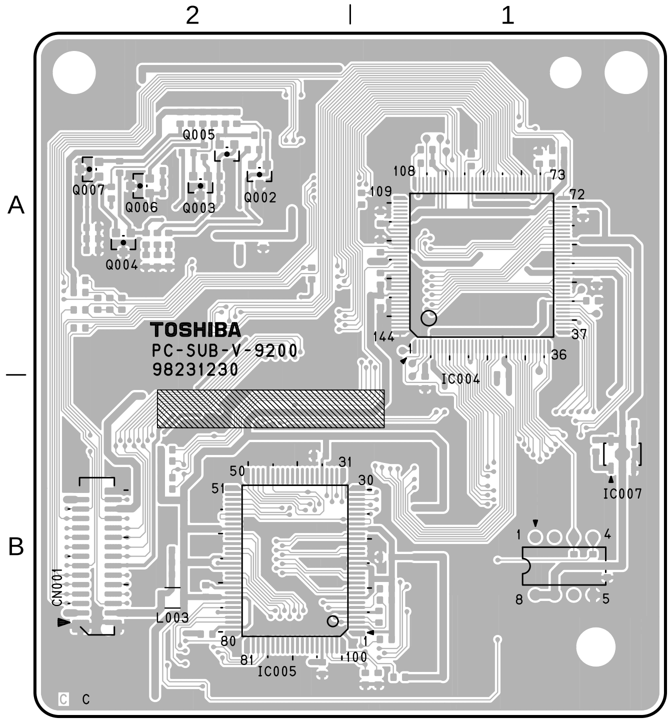

2
1
A
B
Q005
Q007
Q006
Q003
Q002
Q004
108
73
109
72
144
37
36
IC004
TOSHIBA
PC-SUB-V-9200
98231230
50
31
51
30
IC007
CN001
L003
80
81
IC005
100
8
5
C

Fig. 3-6-5 EU16
Sub Video PC Board (Bottom side)

Part No.	Location
CN001	B2
IC004	A1
IC005	B2
IC007	B1
L003	B2
Q002	A2
Q003	A2
Q004	A2
Q005	A2
Q006	A2
Q007	A2

6-4. Display PC Board

Part No.	Loca-tion
A101	B5
C101	B3
C102	B3
CN106	B2
CN107	B6
MT101	B2

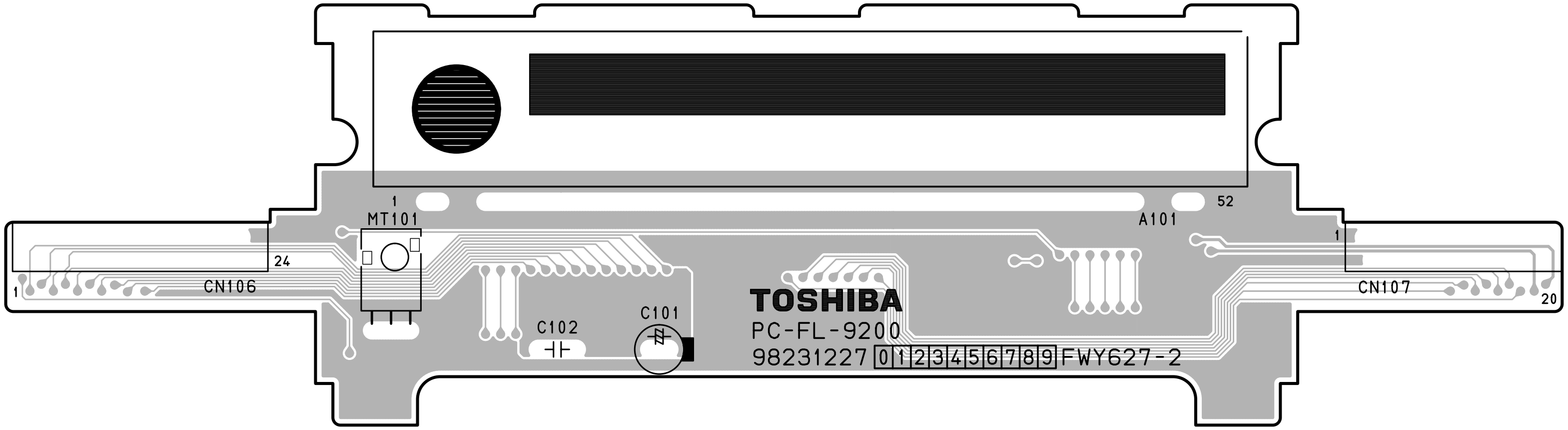

1
MT101
24
1
CN106
C102
C101
TOSHIBA
PC-FL-9200
98231227 0 1 2 3 4 5 6 7 8 9 FWY627-2
52
A101
1
CN107
20

Fig. 3-6-6 EU19 Display PC Board (Top side)

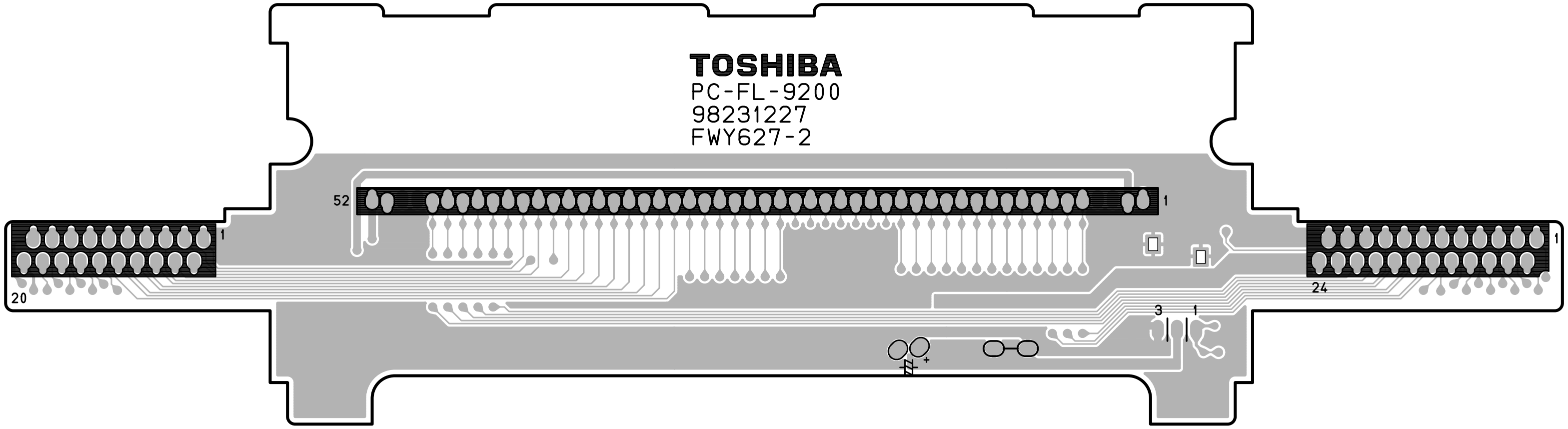

TOSHIBA
PC-FL-9200
98231227
FWY627-2
52
1
1
20
24
1
3
1

Fig. 3-6-7 EU19 Display PC Board (Bottom side)

6-5. Front PC Board

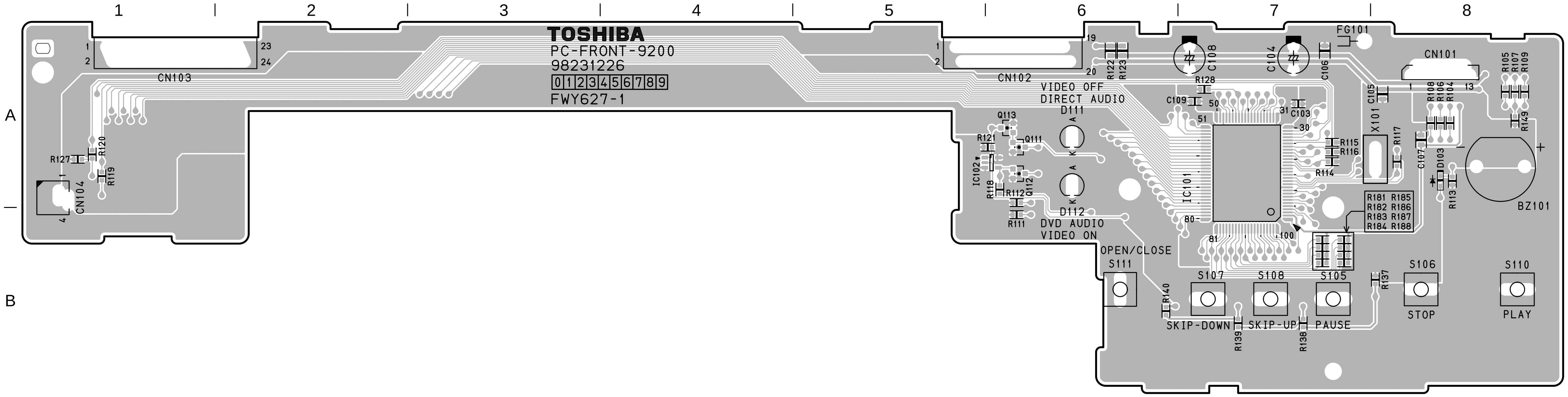

1
2
3
4
5
6
7
8
A
B
TOSHIBA
PC-FRONT-9200
98231226
0123456789
FWY627-1
CN103
CN102
CN101
CN104
VIDEO OFF
DIRECT AUDIO
DVD AUDIO
VIDEO ON
OPEN/CLOSE
D111
D112
IC101
IC102
Q111
Q112
Q113
X101
FG101
BZ101
C103
C104
C105
C106
C107
C108
C109
R181 R185
R182 R186
R183 R187
R184 R188
S111
S107
S108
S105
S106
S110
SKIP-DOWN
SKIP-UP
PAUSE
STOP
PLAY

Fig. 3-6-8 EU03 Front PC Board (Top Side)

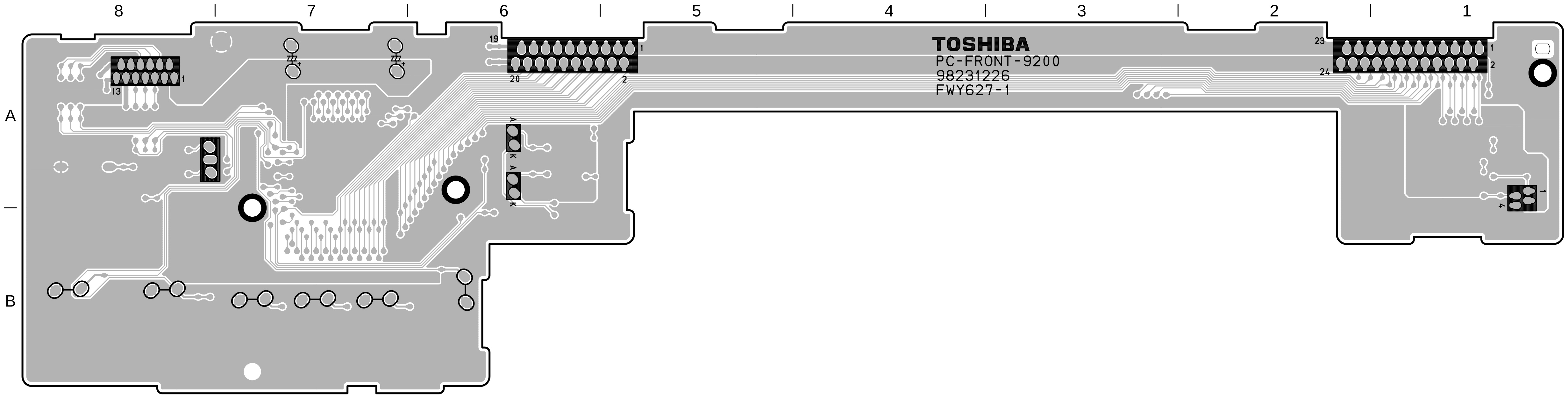

8
7
6
5
4
3
2
1
A
B
TOSHIBA
PC-FRONT-9200
98231226
FWY627-1

Fig. 3-6-9 EU03 Front PC Board (Bottom Side)

Part No.	Location
BZ101	A8
C103	A7
C104	A7
C105	A8
C106	A7
C107	A8
C108	A7
C109	A7
CN101	A8
CN102	A6
CN103	A1
CN104	A1
D103	A8
D111	A6
D112	A6
FG101	A7
IC101	A7
IC102	A6
Q111	A6
Q112	A6
Q113	A6
R104	A8
R105	A8
R106	A8
R107	A8
R108	A8
R109	A8
R111	B6
R112	A6
R113	A8
R114	A7
R115	A7
R116	A7
R117	A8
R118	A6
R119	A1
R120	A1
R121	A6
R122	A6
R123	A6
R127	A1
R128	A7
R137	B8
R138	B7
R139	B7
R140	B6
R149	A8
R181	B7
R182	B7
R183	B7
R184	B7
R185	B7
R186	B7
R187	B7
R188	B7
S105	B7
S106	B8
S107	B7
S108	B7
S110	B8
S111	B6
X101	A8

6-6. Main PC Board

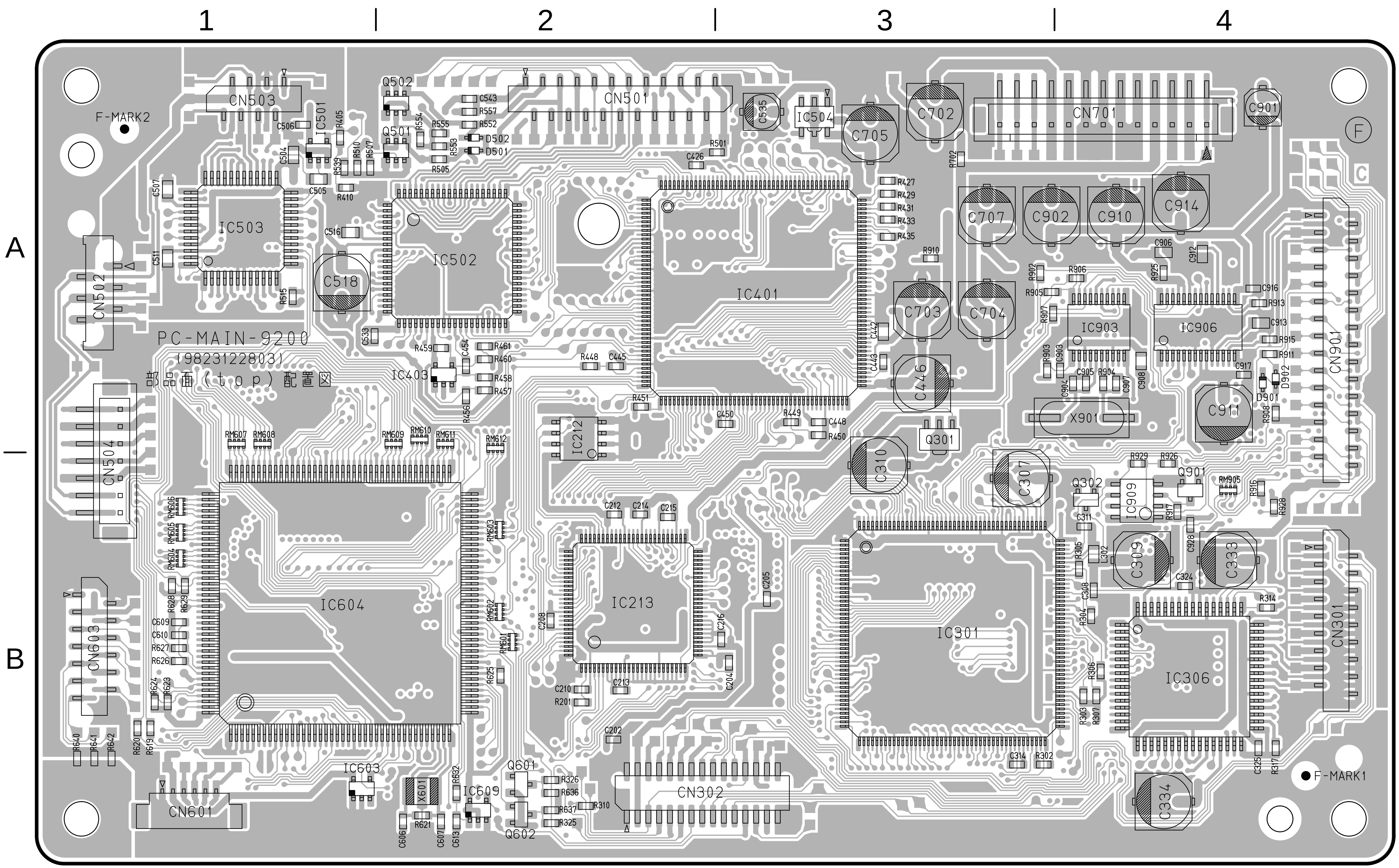

1
2
3
4
A
B
CN503
F-MARK2
IC501
Q502
Q501
CN501
C535
IC504
C705
C702
CN701
C901
F
C506
R405
C504
R510
R507
R539
R410
C505
C543
R557
R552
R555
R553
D502
D501
R505
R554
R501
C426
R702
C507
IC503
C511
CN502
C516
IC502
C518
R515
C533
IC401
R427
R429
R431
R433
R435
R910
C707
C902
C910
C914
C906
C912
R902
R906
R905
R907
R925
C916
R913
C913
R915
R911
C703
C704
IC903
IC906
C442
C443
C446
R903
C903
C905
R904
C904
C907
C908
C917
D902
D901
C911
X901
R908
CN901
C
PC-MAIN-9200
(9823122803)
部品面(top)配置図
R459
C454
R461
R460
R458
R457
R456
IC403
R448
C445
R451
C450
R449
C448
R450
Q301
C310
C307
IC212
RM607
RM608
RM609
RM610
RM611
RM612
CN504
RM606
RM605
RM604
RM603
R929
R926
Q302
Q901
RM905
R916
R928
IC909
R917
C311
C212
C214
C215
IC604
IC213
C205
IC301
R305
C302
C309
C928
C333
C324
C308
R314
R304
CN603
R628
R629
C609
C610
R627
R626
RM502
RM501
C208
C216
IC306
CN301
R306
R625
C210
R201
C213
C204
R303
R307
R624
R623
C202
C314
R302
C325
R317
R640
R641
R642
R620
R619
IC603
X601
R632
IC609
Q601
R326
R636
R310
R637
R325
Q602
CN302
C334
F-MARK1
CN601
C606
R621
C607
C613

Fig. 3-6-10 EU01 Main PC Board (Top pattern and Top parts location diagram)

Main PC Board (Top side)

Part No.	Location
C202	B2
C204	B3
C205	B3
C208	B2
C210	B2
C212	B2
C213	B2
C214	B2
C215	B2
C216	B3
C307	B3
C308	B4
C309	B4
C310	B3
C311	B4
C314	B3
C324	B4
C325	B4
C333	B4
C334	B4
C426	A2
C442	A3
C443	A3
C445	A2
C446	A3
C448	A3
C450	A3
C454	A2
C504	A1
C505	A1
C506	A1
C507	A1
C511	A1
C516	A1
C518	A1
C533	A1
C535	A3
C543	A2
C606	B2
C607	B2
C609	B1
C610	B1
C613	B2
C702	A3
C703	A3
C704	A3
C705	A3
C707	A3
C901	A4
C902	A3
C903	A4
C904	A4
C905	A4
C906	A4
C907	A4
C908	A4
C910	A4
C911	A4
C912	A4
C913	A4
C914	A4
C916	A4
C917	A4
C928	B4
CN301	B4
CN302	B2
CN501	A2
CN502	A1
CN503	A1
CN504	B1
CN601	B1
CN603	B1
CN701	A4
CN901	A4
D501	A2
D502	A2
D901	A4
D902	A4
IC212	A2
IC213	B2
IC301	B3
IC306	B4
IC401	A3
IC403	A2
IC501	A1
IC502	A2
IC503	A1
IC504	A3
IC603	B1
IC604	B1
IC609	B2
IC903	A4
IC906	A4
IC909	B4
JP601	B1
L302	B4
Q301	A3
Q302	B4
Q501	A2
Q502	A2
Q601	B2
Q602	B2
Q901	B4
R201	B2
R302	B3
R303	B4
R304	B4
R305	B4
R306	B4
R307	B4
R310	B2
R314	B4
R317	B4
R325	B2
R326	B2
R405	A1
R410	A1
R427	A3
R429	A3
R431	A3
R433	A3
R435	A3
R448	A2
R449	A3
R450	A3
R451	A2
R456	A2
R457	A2
R458	A2
R459	A2
R460	A2
R461	A2
R501	A3
R505	A2
R507	A1
R510	A1
R515	A1
R539	A1
R552	A2
R553	A2
R554	A2
R555	A2
R557	A2
R619	B1
R620	B1
R621	B2
R623	B1
R624	B1
R625	B2
R626	B1
R627	B1
R628	B1
R629	B1
R632	B2
R636	B2
R637	B2
R640	B1
R641	B1
R642	B1
R702	A3
R902	A3
R903	A3
R904	A4
R905	A3
R906	A4
R907	A3
R908	A4
R910	A3
R911	A4
R913	A4
R915	A4
R916	B4
R917	B4
R925	A4
R926	B4
R928	B4
R929	B4
RM601	B2
RM602	B2
RM603	B2
RM604	B1
RM605	B1
RM606	B1
RM607	A1
RM608	A1
RM609	A2
RM610	A2
RM611	A2
RM612	A2
RM905	B4
X601	B2
X901	A4

Main PC Board (Bottom side)

Part No.	Location
C201	B2
C203	B2
C209	B2
C211	A2
C301	B3
C302	B3
C303	B3
C304	B3
C305	B3
C306	B3
C312	B3
C313	A3
C315	B3
C316	B3
C317	B4
C318	B3
C319	B4
C320	B3
C321	B4
C322	B4
C323	B4
C326	B4
C327	B4
C328	B4
C329	B4
C330	B4
C331	B4
C332	B4
C335	A4
C336	A4
C337	A4
C338	A4
C339	A4
C340	A4
C341	A4
C401	A3
C402	A3
C403	A2
C404	A2
C405	A2
C406	A2
C407	A3
C408	A2
C409	A3
C410	A3
C411	A3
C412	A2
C413	A3
C414	A3
C415	A2
C416	A3
C417	A3
C418	A3
C419	A3
C420	A3
C421	A2
C422	A3
C423	A2
C424	A3
C425	A3
C427	A3
C428	A3
C429	A3
C430	A3
C431	A3
C432	A3
C433	A3
C434	A3
C435	A3
C436	A2
C437	A2
C438	A2
C439	A3
C440	A2
C441	A2
C444	A3
C447	A2
C449	A2
C451	A2
C452	A2
C453	A2
C501	A2
C502	A2
C503	A2
C508	A1
C509	A1
C510	A2
C512	A2
C513	A2
C514	A2
C515	A1
C517	A2
C519	A2
C520	A3
C522	A2
C523	A2
C524	A2
C525	A2
C526	A2
C527	A2
C528	A2
C529	A2
C530	A2
C531	A2
C532	A2
C534	A2
C536	A3
C538	A2
C539	A2
C541	A1
C542	A2
C601	B1
C602	B1
C603	B1
C604	B1
C605	B2
C608	B2
C611	B1
C612	B2
C614	B1
C615	B2
C706	A4
C708	A3
C709	A3
C710	A3
C711	A4
C909	A4
C915	A4
C918	A3
C919	A3
C920	A4
C922	A3
C923	A4
C924	A3
C925	A4
C926	A3
C927	A4
FL301	A3
FL302	B4
FL401	A3
IC201	B2
IC202	B2
IC302	B3
IC303	B3
IC304	B4
IC305	B3
IC402	A3
IC601	B1
IC602	B1
IC605	A1
IC606	B2
IC607	B1
IC608	B1
IC610	B2
IC611	A2
IC901	A4
IC902	A4
IC904	A4
IC905	A4
IC907	A3
IC908	A4
IC910	B4
L301	B3
L303	B4
L901	B4
Q401	A1
Q902	B4
R202	A2
R203	A2
R205	B3
R301	B3
R308	B4
R309	B4
R311	B3
R312	B4
R313	B4
R315	B4
R316	B4
R318	B4
R319	B4
R320	B4
R321	B4
R322	B4
R323	B4
R324	B4
R327	B4
R328	B4
R329	B4
R330	B4
R331	B4
R332	B4
R333	A4
R334	A4
R335	A4
R401	A2
R402	A1
R403	A3
R404	A1
R406	A2
R407	A3
R408	A1
R409	A2
R411	A3
R412	A3
R413	A3
R414	A2
R415	A3
R416	A3
R417	A2
R418	A3
R419	A2
R420	A2
R421	A2
R422	A2
R423	A2
R424	A2
R425	A2
R426	A3
R428	A3
R430	A3
R432	A3
R434	A3
R436	A3
R437	A3
R438	A3
R439	A3
R440	A2
R441	A2
R442	A3
R443	A3
R444	A2
R445	A2
R446	A2
R447	A2
R452	A3
R453	A3
R454	A2
R502	A2
R503	A2
R504	A2
R506	A3
R508	A2
R509	A1
R512	A2
R513	A1
R516	A2
R517	A1
R518	A1
R519	A2
R520	A1
R521	A1
R522	A1
R523	A1
R524	A1
R525	A2
R526	A1
R527	A1
R528	A1
R529	A1
R530	A1
R532	A1
R533	A1
R535	A2
R536	A2
R538	A2
R542	A3
R545	A2
R546	A3
R547	A2
R548	A2
R549	A2
R550	A2
R551	A2
R556	A2
R601	B1
R602	B1
R603	B1
R604	B1
R605	B1
R606	B1
R607	B1
R608	B1
R609	B1
R610	B1
R611	B1
R612	B1
R613	B1
R614	B2
R615	B1
R616	B1
R617	B1
R618	B2
R630	B2
R631	B2
R633	B1
R634	B1
R635	B2
R638	B2
R639	B2
R643	B1
R644	B1
R645	B1
R646	B2
R647	B2
R701	A4
R901	A4
R909	A4
R912	B4
R918	A3
R919	A4
R920	A3
R921	A4
R923	A4
R924	A4
R927	B4
RM201	B2
RM202	B2
RM203	B2
RM301	B4
RM302	B4
RM613	B1
RM901	A4
RM902	A4
RM903	A4
RM904	B4
X401	A2

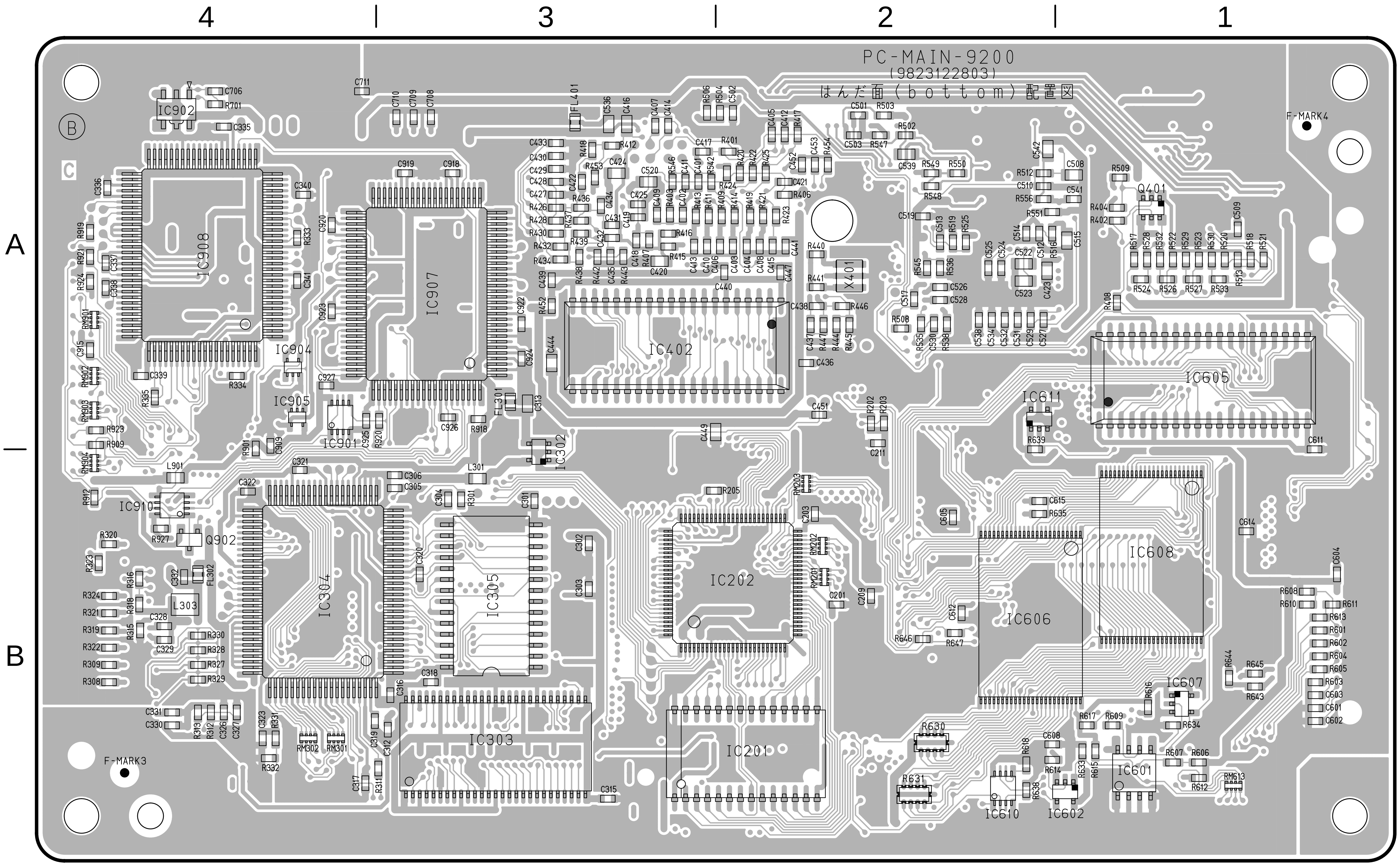

4
3
2
1
A
B
PC-MAIN-9200
(9823122803)
はんだ面（bottom）配置図
IC902
IC908
IC907
IC904
IC905
IC901
IC402
IC605
IC611
IC302
IC910
Q902
Q401
X401
IC304
IC305
IC303
IC202
IC201
IC606
IC608
IC607
IC601
IC610
IC602
L303
F-MARK3
F-MARK4

Fig. 3-6-11 EU01 Main PC Board (Bottom pattern and bottom parts location diagram)

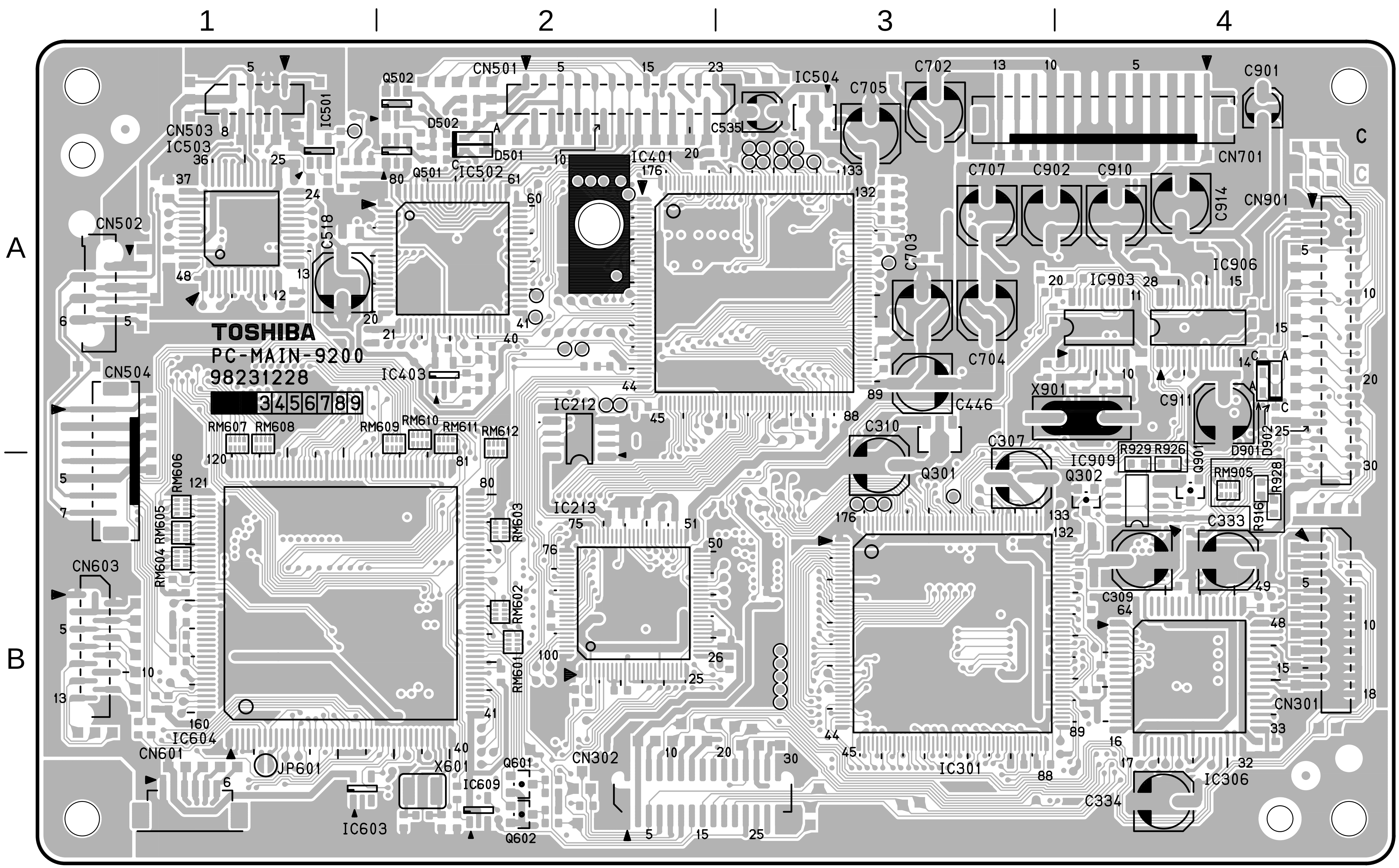

1
2
3
4
A
B
C
CN501
CN502
CN503
CN504
CN601
CN603
CN302
CN301
CN701
CN901
IC501
IC502
IC503
IC504
IC401
IC403
IC212
IC213
IC301
IC306
IC603
IC604
IC609
IC903
IC906
IC909
Q501
Q502
Q301
Q302
Q601
Q602
Q901
D501
D502
D901
D902
C518
C535
C702
C703
C704
C705
C707
C902
C910
C914
C901
C911
C446
C310
C307
C309
C333
C334
X601
X901
JP601
RM601
RM602
RM603
RM604
RM605
RM606
RM607
RM608
RM609
RM610
RM611
RM612
RM905
R916
R926
R928
R929
TOSHIBA
PC-MAIN-9200
98231228
3 4 5 6 7 8 9

Fig. 3-6-12 EU01 Main PC Board (Top pattern, character/symbol)

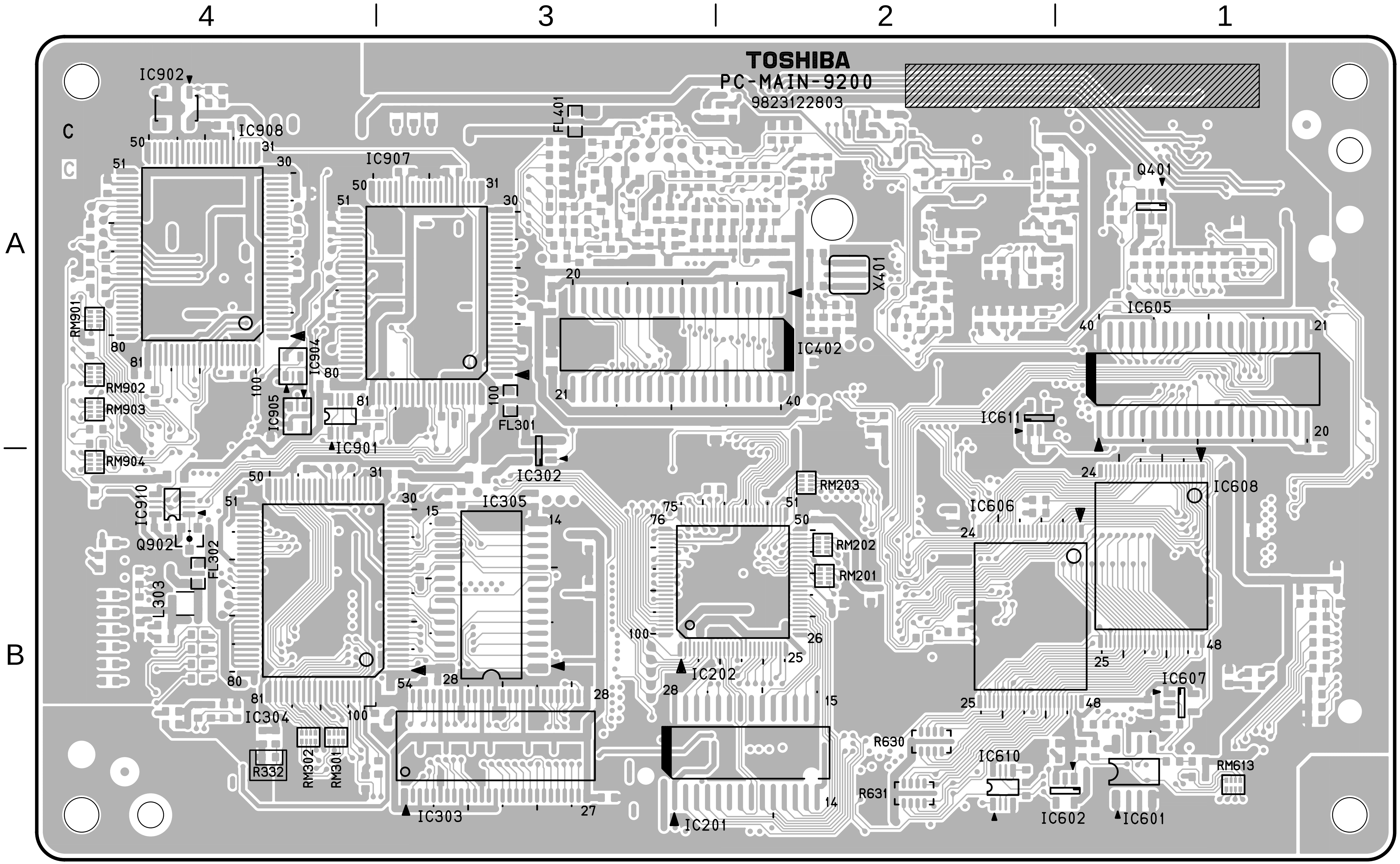

4
3
2
1
A
B
TOSHIBA
PC-MAIN-9200
9823122803
IC902
IC908
IC907
FL401
Q401
X401
IC402
IC605
IC611
IC608
IC606
IC607
IC610
IC602
IC601
RM613
R630
R631
IC201
IC202
RM203
RM202
RM201
IC302
IC305
IC303
IC304
RM302
RM301
R332
IC301
FL301
IC904
IC905
IC901
IC910
Q902
FL302
L303
RM901
RM902
RM903
RM904

Fig. 3-6-13 EU01 Main PC Board (Bottom pattern, character/symbol)

6-7. Output PC Board

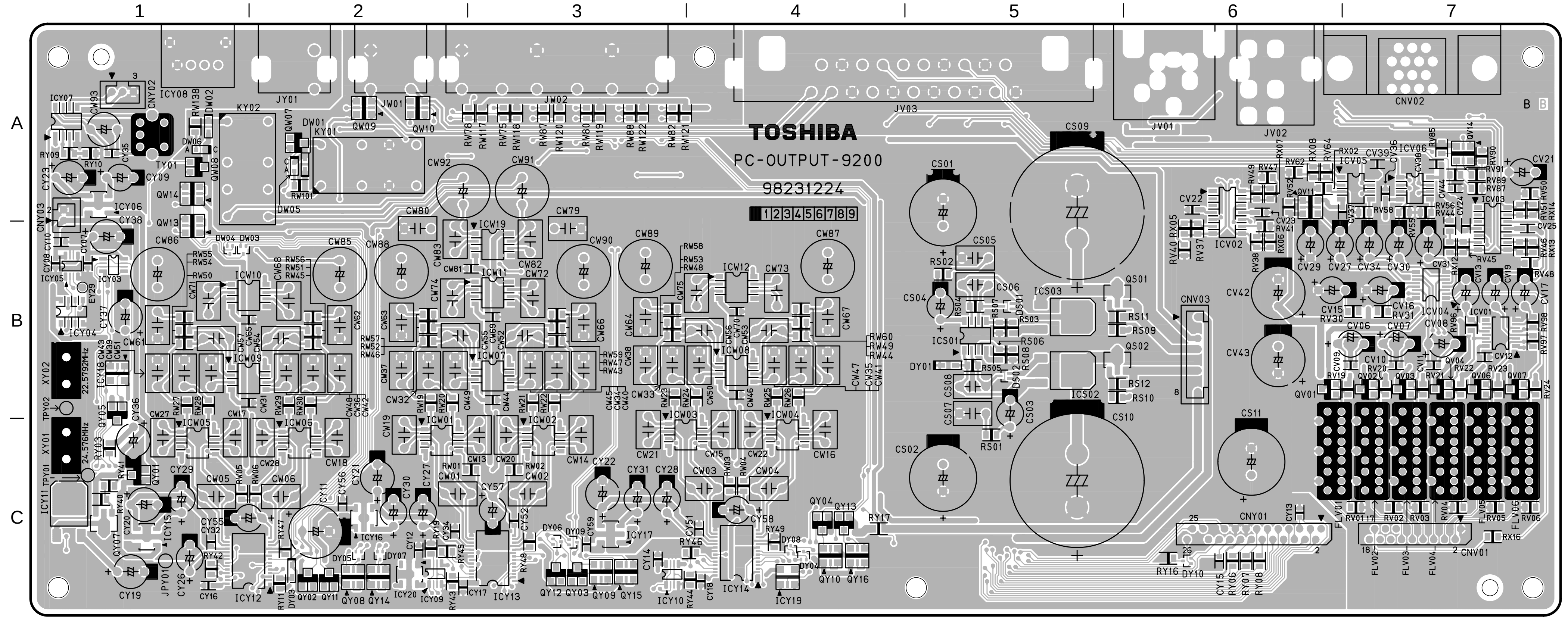


Fig. 3-6-14 EU05 Output PC Board (Top side)

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
CNV01	C7	CW32	B2	CY016	C1	ICW6	C2	RS07	B5	RW44	B4
CNV03	B6	CW33	B3	CY017	C2	ICW7	B3	RS08	B5	RW45	B2
CNY01	C6	CW34	B3	CY018	C4	ICW8	B4	RS09	B5	RW46	B2
CNY02	A1	CW35	B4	CY019	C1	ICW9	B1	RS10	B5	RW47	B3
CNY03	A1	CW36	B2	CY020	C1	ICW10	B1	RS11	B5	RW48	B3
CS01	A5	CW37	B2	CY021	C2	ICW11	B3	RS12	B5	RW49	B4
CS02	C5	CW38	B3	CY022	C3	ICW12	B4	RV01	C7	RW50	B1
CS03	B5	CW39	B1	CY023	A1	ICW19	B3	RV02	C7	RW51	B2
CS04	B5	CW40	B3	CY026	C1	ICY03	B1	RV03	C7	RW52	B2
CS05	B5	CW41	B4	CY027	C2	ICY04	B1	RV04	C7	RW53	B3
CS06	B5	CW42	B2	CY028	C3	ICY05	B1	RV05	C7	RW54	B1
CS07	B5	CW43	B1	CY029	C1	ICY06	A1	RV06	C7	RW55	B1
CS08	B5	CW44	B3	CY030	C2	ICY07	A1	RV19	B7	RW56	B2
CS09	A5	CW45	B3	CY031	C3	ICY09	C2	RV20	B7	RW57	B2
CS10	C5	CW46	B4	CY032	C1	ICY10	C3	RV21	B7	RW58	B3
CS11	C6	CW47	B4	CY034	C2	ICY11	C1	RV22	B7	RW59	B3
CV06	B7	CW48	B2	CY035	A1	ICY12	C1	RV23	B7	RW60	B4
CV07	B7	CW49	B2	CY036	C1	ICY13	C3	RV24	B7	RW75	A3
CV08	B7	CW50	B4	CY037	B1	ICY14	C4	RV30	B7	RW78	A3
CV09	B7	CW51	B1	CY038	B1	ICY15	C1	RV31	B7	RW80	A3
CV10	B7	CW52	B3	CY051	C4	ICY16	C2	RV37	B6	RW82	A3
CV11	B7	CW53	B4	CY052	C3	ICY17	C3	RV38	B6	RW87	A3
CV12	B7	CW54	B2	CY055	C1	ICY18	B1	RV40	B6	RW88	A3
CV13	B7	CW55	B2	CY056	C2	ICY19	C4	RV41	B6	RW101	A2
CV15	B6	CW56	B4	CY057	C3	ICY20	C2	RV44	B7	RW117	A3
CV16	B7	CW57	B1	CY058	C4	JPY01	C1	RV45	B7	RW118	A3
CV17	B7	CW61	B1	CY059	C3	KY01	A2	RV46	B7	RW119	A3
CV19	B7	CW62	B2	DS01	B5	KY02	A1	RV47	A6	RW120	A3
CV21	A7	CW63	B2	DS02	B5	QS01	B5	RV48	B7	RW121	A3
CV22	A6	CW64	B3	DW01	A2	QS02	B5	RV49	A6	RW122	A3
CV23	A6	CW65	B1	DW02	A1	QV01	B6	RV50	A7	RW138	A1
CV24	B7	CW66	B3	DW03	B1	QV02	B7	RV51	A7	RX02	A6
CV25	B7	CW67	B4	DW04	B1	QV03	B7	RV52	A6	RX05	B6
CV27	B6	CW68	B2	DW05	A2	QV04	B7	RV55	A7	RX06	B6
CV29	B6	CW69	B3	DW06	A1	QV06	B7	RV56	A7	RX07	A6
CV30	B7	CW70	B4	DY01	B5	QV07	B7	RV58	A7	RX08	A6
CV31	B7	CW71	B1	DY03	C2	QV11	A6	RV62	A6	RX12	B7
CV34	B7	CW72	B3	DY04	C4	QV14	A7	RV64	A6	RX13	B7
CV36	A7	CW73	B4	DY05	C2	QW07	A2	RV85	A7	RX14	A7
CV37	A7	CW74	B2	DY06	C3	QW08	A1	RV87	A7	RX16	C7
CV38	A7	CW75	B4	DY07	C2	QW09	A2	RV89	A7	RY03	C1
CV39	A7	CW79	B3	DY08	C4	QW10	A2	RV90	A7	RY06	C6
CV42	B6	CW80	B2	DY09	C3	QW13	B1	RV91	A7	RY07	C6
CV43	B6	CW81	B3	DY010	C6	QW14	A1	RV96	B7	RY08	C6
CV44	A7	CW82	B3	FLV01	C6	QY01	C1	RV97	B7	RY09	A1
CW01	C2	CW83	B2	FLV02	C7	QY02	C2	RV98	B7	RY10	A1
CW02	C3	CW85	B2	FLV03	C7	QY03	C3	RW01	C3	RY11	C2
CW03	C4	CW86	B1	FLV04	C7	QY04	C4	RW02	C3	RY16	C6
CW04	C4	CW87	B4	FLV05	C7	QY05	B1	RW03	C4	RY17	C4
CW05	C1	CW88	B2	FLV06	C7	QY07	C1	RW04	C4	RY19	C2
CW06	C2	CW89	B3	ICS01	B5	QY08	C2	RW05	C1	RY40	C1
CW13	C3	CW90	B3	ICS02	B5	QY09	C3	RW06	C2	RY41	C1
CW14	C3	CW91	A3	ICS03	B5	QY10	C4	RW19	B2	RY42	C1
CW15	C4	CW92	A2	ICV01	B7	QY11	C2	RW20	B2	RY43	C2
CW16	C4	CW93	A1	ICV02	A6	QY12	C3	RW21	B3	RY44	C4
CW17	C1	CY07	B1	ICV03	B7	QY13	C4	RW22	B3	RY45	C2
CW18	C2	CY08	B1	ICV04	B7	QY14	C2	RW23	B3	RY46	C4
CW19	C2	CY09	A1	ICV05	A7	QY15	C3	RW24	B4	RY47	C2
CW20	C3	CY010	B1	ICV06	A7	QY16	C4	RW25	B4	RY48	C3
CW21	C3	CY011	C2	ICW1	C2	RS01	C5	RW26	B4	RY49	C4
CW22	C4	CY012	C2	ICW2	C3	RS02	B5	RW27	B1	TPY01	C1
CW27	C1	CY013	C6	ICW3	C3	RS03	B5	RW28	B1	TPY02	B1
CW28	C2	CY014	C3	ICW4	C4	RS04	B5	RW29	B2	TY01	A1
CW31	B1	CY015	C6	ICW5	C1	RS05	B5	RW30	B2	XY01	C1
						RS06	B5	RW43	B3	XY02	B1

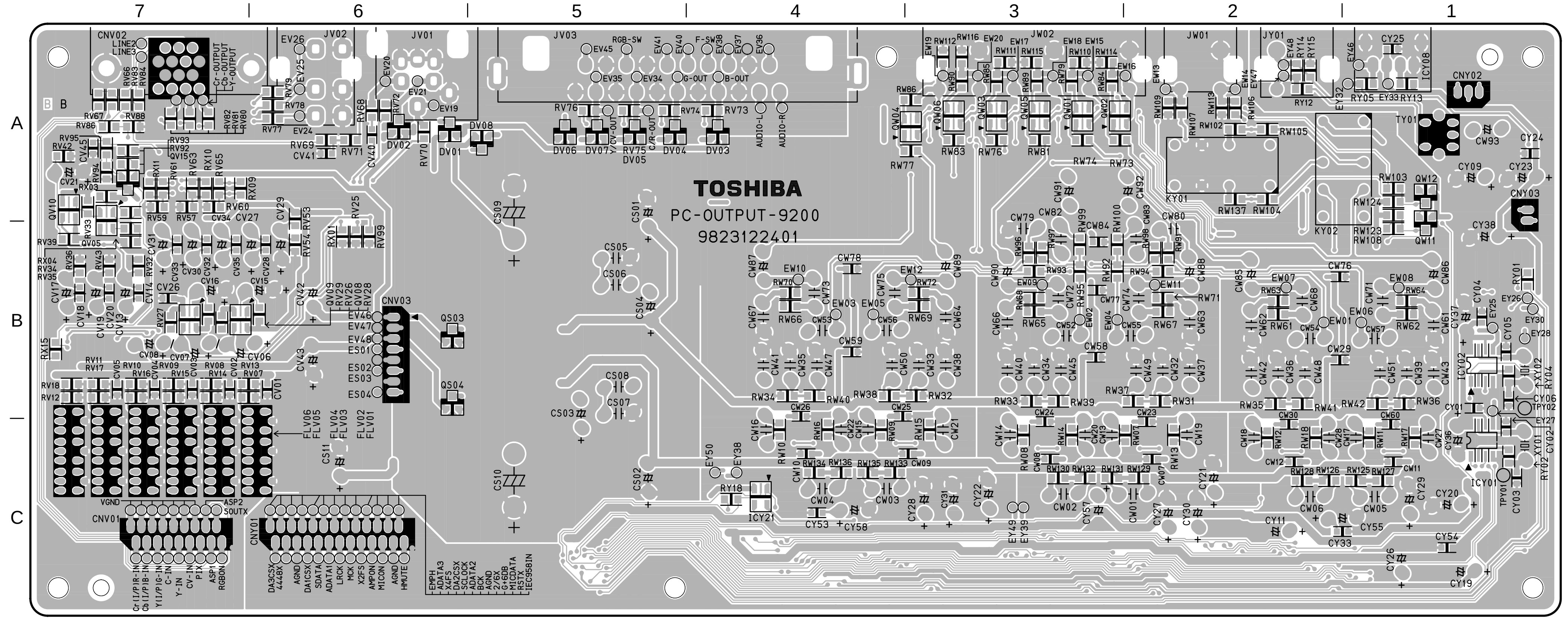


Fig. 3-6-15 EU05 Output PC Board (Bottom side)

Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location	Part No.	Location
CV01	B6	DV02	A6	RV39	B7	RW17	C1	RW10	B3
CV02	B7	DV03	A4	RV42	A7	RW18	C2	RW102	A2
CV03	B7	DV04	A5	RV43	B7	RW31	B2	RW103	A1
CV04	B7	DV05	A5	RV53	A6	RW32	B3	RW104	A2
CV05	B7	DV06	A5	RV54	B6	RW33	B3	RW105	A2
CV14	B7	DV07	A5	RV57	A7	RW34	B4	RW106	A2
CV18	B7	DV08	A5	RV59	A7	RW35	B2	RW107	A2
CV20	B7	ICY1	C1	RV60	A7	RW36	B1	RW108	B1
CV26	B7	ICY2	B1	RV61	A7	RW37	B2	RW109	A2
CV28	B6	ICY21	C4	RV63	A7	RW38	B4	RW110	A3
CV32	B7	QS03	B6	RV65	A7	RW39	B3	RW111	A3
CV33	B7	QS04	B6	RV66	A7	RW40	B4	RW112	A3
CV35	B7	QV05	A7	RV67	A7	RW41	B2	RW113	A2
CV40	A6	QV08	B7	RV68	A6	RW42	B1	RW114	A3
CV41	A6	QV09	B7	RV69	A6	RW61	B2	RW115	A3
CV45	A7	QV10	A7	RV70	A6	RW62	B1	RW116	A3
CW07	C2	QV15	A7	RV71	A6	RW63	B2	RW123	A1
CW08	C3	QW01	A3	RV72	A6	RW64	B1	RW124	A1
CW09	C3	QW02	A3	RV73	A4	RW65	B3	RW125	C1
CW10	C4	QW03	A3	RV74	A5	RW66	B4	RW126	C2
CW11	C1	QW04	A3	RV75	A5	RW67	B2	RW127	C1
CW12	C2	QW05	A3	RV76	A5	RW68	B3	RW128	C2
CW23	C2	QW06	A3	RV77	A6	RW69	B3	RW129	C2
CW24	C3	QW11	B1	RV78	A6	RW70	B4	RW130	C3
CW25	B4	QW12	A1	RV79	A6	RW71	B2	RW131	C3
CW26	B4	RV07	B7	RV80	A7	RW72	B3	RW132	C3
CW29	B2	RV08	B7	RV81	A7	RW73	A3	RW133	C4
CW30	C2	RV09	B7	RV82	A7	RW74	A3	RW134	C4
CW58	B3	RV10	B7	RV83	A7	RW76	A3	RW135	C4
CW59	B4	RV11	B7	RV84	A7	RW77	A3	RW136	C4
CW60	C1	RV12	B7	RV86	A7	RW79	A3	RW137	A2
CW76	B2	RV13	B7	RV88	A7	RW81	A3	RX01	B6
CW77	B3	RV14	B7	RV92	A7	RW83	A3	RX03	A7
CW78	B4	RV15	B7	RV93	A7	RW84	A3	RX04	A7
CW84	B3	RV16	B7	RV94	A7	RW85	A3	RX09	A7
CY01	B1	RV17	B7	RV95	A7	RW86	A3	RX10	A7
CY02	C1	RV18	B7	RV99	B6	RW89	A3	RX11	A7
CY03	C1	RV25	B6	RW07	C2	RW90	A3	RX15	B7
CY04	B1	RV26	B7	RW08	C3	RW91	B2	RY01	B1
CY05	B1	RV27	B7	RW09	C4	RW92	B3	RY02	C1
CY06	B1	RV28	B6	RW10	C4	RW93	B3	RY04	B1
CY24	A1	RV29	B7	RW11	C1	RW94	B2	RY05	A1
CY25	A1	RV32	B7	RW12	C2	RW95	B3	RY12	A2
CY33	C1	RV33	A7	RW13	C2	RW96	B3	RY13	A1
CY53	C4	RV34	B7	RW14	C3	RW97	B3	RY14	A2
CY54	C1	RV35	B7	RW15	C3	RW98	B2	RY15	A2
DV01	A6	RV36	B7	RW16	C4	RW99	B3	RY18	C4

SECTION 4
PARTS LIST

SAFETY PRECAUTION

The parts identified by ! (⚠) mark are critical for safety. Replace only with part number specified.

The mounting position of replacement is to be identical with originals.

The substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

NOTICE

The part number must be used when ordering parts in order to assist in processing, be sure to include the model number and description.

ABBREVIATIONS

1. Integrated Circuit (IC)

2. Capacitor (Cap)

- **Capacitance Tolerance (for Nominal Capacitance more than 10pF)**

Table 4-2-1

Symbol	B	C	D	F	G	J	K	M	N
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20	± 30

Symbol	P	Q	T	U	V	W	X	Y	Z
Tolerance %	+ 100 0	+ 30 – 10	+ 50 – 10	+ 75 – 10	+ 20 – 10	+ 100 – 10	+ 40 – 20	+ 150 – 10	+ 80 – 20

Ex. 10MF J = 10µF ± 5%

- **Capacitance Tolerance (for Nominal Capacitance 10pF or less)**

Table 4-2-2

Symbol	B	C	D	F	G
Tolerance pF	± 0.1	± 0.25	± 0.5	± 1	± 2

Ex. 10pF G = 10pF ± 2pF

3. Resistor (Res)

- **Resistance tolerance**

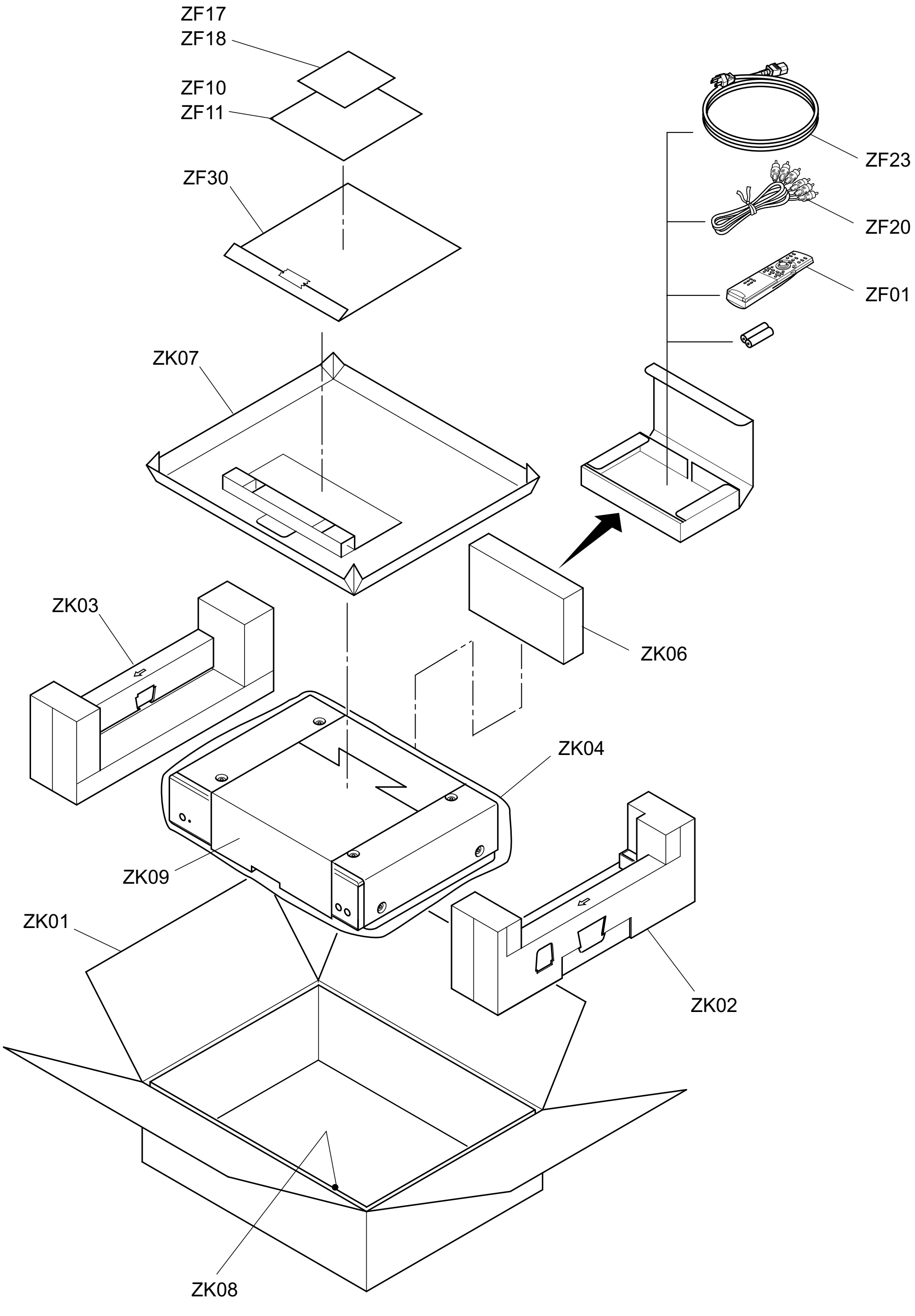
Table 4-3-1

Symbol	B	C	D	F	G	J	K	M
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10	± 20

Ex. 470ohmJ = 470ohm± 5%

4. EXPLODED VIEWS

4-1. Packing Assembly



ZF17
ZF18
ZF10
ZF11
ZF30
ZK07
ZF23
ZF20
ZF01
ZK03
ZK06
ZK04
ZK09
ZK01
ZK02
ZK08

Fig. 4-4-1

4-2. Chassis Assembly

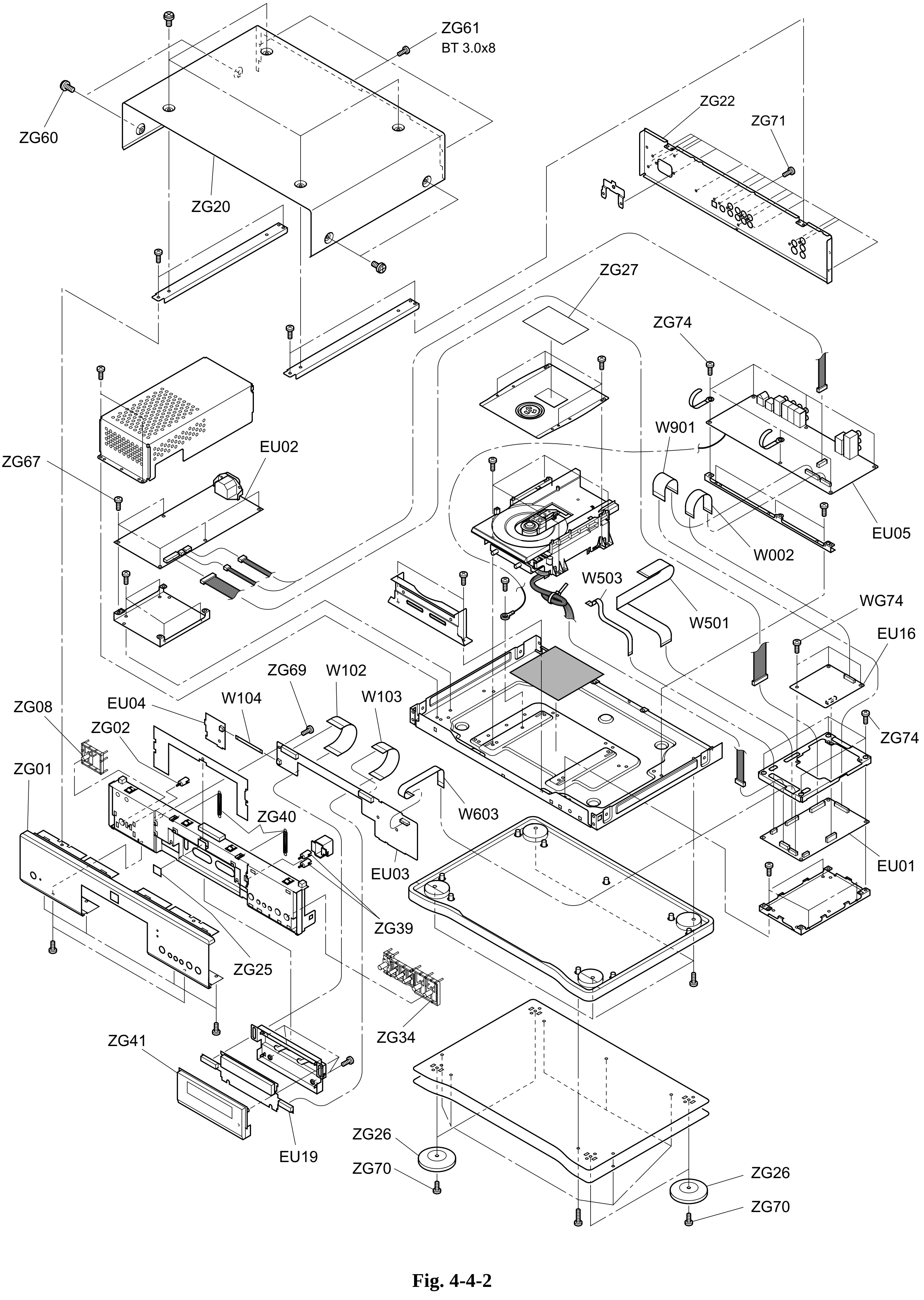

ZG61
BT 3.0x8
ZG60
ZG20
ZG22
ZG71
ZG27
ZG74
W901
ZG67
EU02
EU05
W002
W503
W501
WG74
EU16
ZG69
W102
W103
W104
EU04
ZG08
ZG02
ZG74
ZG01
ZG40
W603
EU03
EU01
ZG39
ZG25
ZG34
ZG41
EU19
ZG26
ZG70
ZG26
ZG70

Fig. 4-4-2

4-3. Mechanism Assembly

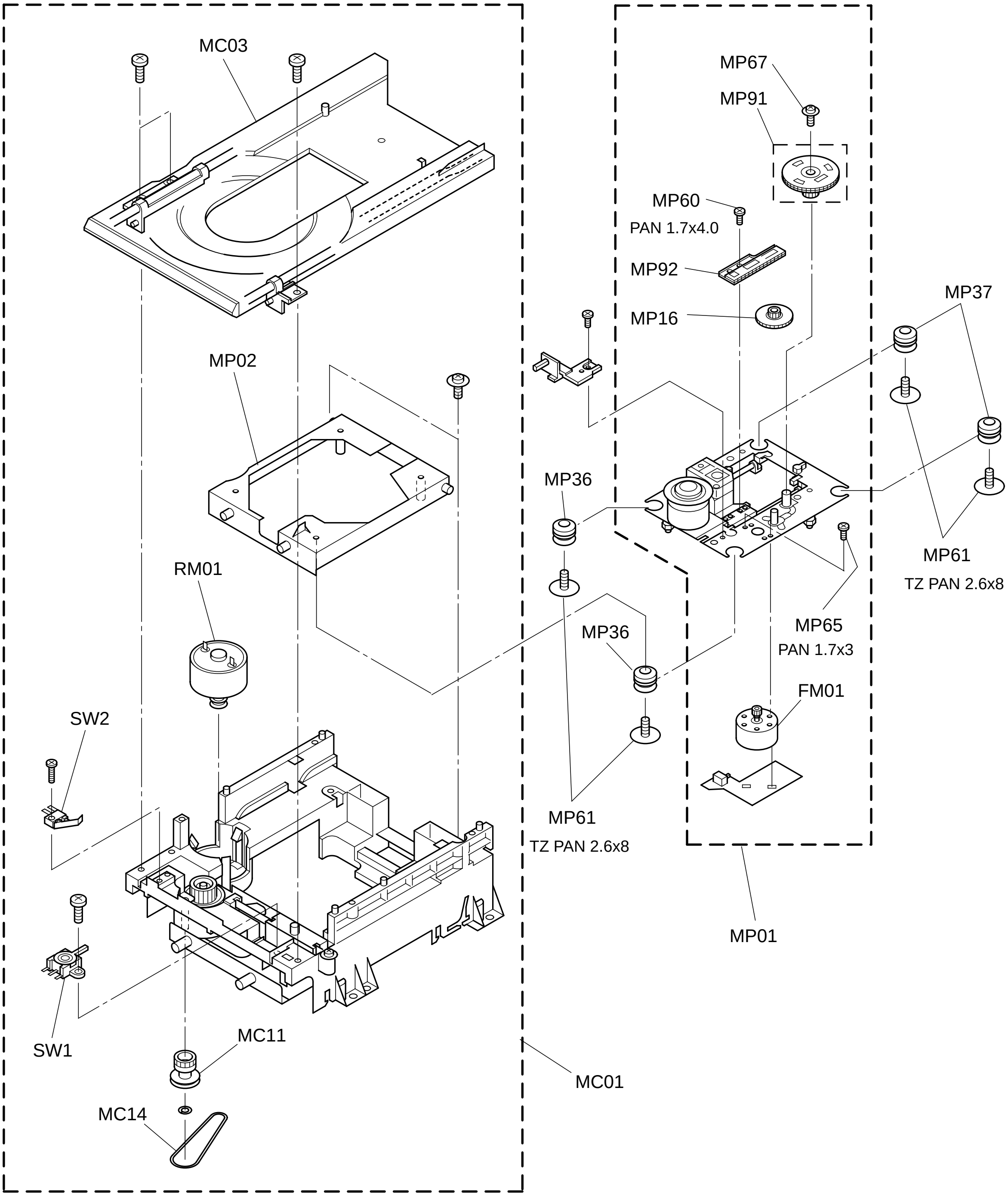

MC03
MP67
MP91
MP60
PAN 1.7x4.0
MP92
MP37
MP16
MP02
MP36
RM01
MP61
TZ PAN 2.6x8
MP36
MP65
PAN 1.7x3
FM01
SW2
MP61
TZ PAN 2.6x8
MP01
SW1
MC11
MC01
MC14

Fig. 4-4-3

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
		- MECHANICAL PARTS -	
FM01	79070421	Motor Assy,Feed	
MP01	79070470	Mechanism Assy,Pickup	
MP16	79070422	Gear	
MP36	79070486	Rubber,Dumper	Front
MP37	79070487	Rubber,Dumper	Rear
MP60	79070020	Screw	1.7x4.0mm
MP61	79070064	Screw	2.6x8W12mm
MP65	79079038	Screw	PAN1.7x3.0
MP91	79070419	Gear Assy,Kit B	
MP92	79070420	Gear Assy,Rack	
W002	79080256	Cable,Flexible	FFC,18P,L90
W102	79080263	Cable,Flexible	FFC,20P,L100D
W103	79080264	Cable,Flexible	FFC,24P,L100D
W104	79080265	Cable,Flexible	FFC,4P,L60
W501	79080261	Cable,Flexible	FFC,23P,L352
W503	79080262	Cable,Flexible	FFC,8P,L155
W603	79080197	Cable,Flexible	FFC,13P,L150
W901	79080260	Cable,Flexible	FFC,26P,L70
ZF01	79078054	Remote Control Unit	SE-R0035
! ZF10	79077104	Owners Manual	English/French
! ZF11	79077105	Owners Manual	Spanish
ZF16	79075104	Label,Shipping	
ZF17	79070272	Warranty Card	USA
ZF18	79070406	Warranty Card	Canada
ZF20	79070037	Cable,AV	
! ZF23	79088024	Power Cord	
ZF26	79070405	Envelope	Canada
ZF30	79070042	Bag,Polyethylene	
ZG01	79071154	Front Panel	
ZG02	79071146	Lens,LED	Power
ZG08	79071150	Button,Power	
ZG20	79073073	Cover,Top	
! ZG21	79073057	Label,Rating	
ZG25	79071148	Plate,DVD	
ZG26	79073033	Foot Assy,Front	
! ZG27	79070469	Label,Caution	
ZG34	79071151	Button,Operation	
ZG39	79071147	Lens,LED	Audio/Video
ZG40	79070488	Spring	
ZG41	79071149	Case,Front	
ZG60	79079046	Screw	9200-BNI
ZG61	79079047	Screw	BT3.0x8
ZK01	79075122	Case	
ZK02	79075123	Packing,R	
ZK03	79075124	Packing,L	
ZK04	79070033	Bag,Polyethylene	
ZK06	79075089	Box,Gift	
ZK07	79075125	Paking,Top	
ZK08	79075126	Frame,Carton	
ZK09	79075130	Sleeve	
ZZ01	79070274	Test Disc	DVDZ-9044
ZZ03	79080074	Kit,Data Update	

LOCATION NUMBER	PART NUMBER	DESCRIPTION		
		- ELECTRICAL PARTS -		
EU01	79083060	PC Board Assy	Main	
		- INTEGRATED CIRCUITS -		
IC201	79040145	IC	NN514800AJ-60T	
IC202	79040154	IC	TC203G08AF-0103Z	
IC212	79040264	IC	S-24C02BFJ-TB	
IC213	79040265	IC	REGULUS	
IC301	79040243	IC	ZR36735	
IC302	79040244	IC	S-816A25AMC-BAA	
IC303	79040245	IC	HY57V651620B	
IC304	79040123	IC	TC203G8AF-0101(Z)	
IC305	79040128	IC	MSM51V8221A	
IC401	79040224	IC	TC9489F	
IC402	79040148	IC	V53C16128HK-30	
IC501	79040006	IC	TC7S04F	
IC502	79040225	IC	TC1313F	
IC503	79040150	IC	KA3032	
IC504	79040247	IC	S-814A33AUC-BCX	
IC601	79040226	IC	S-24C01BFJ-TB-0	
IC602	79040007	IC	TC7S08F	
IC603	79040248	IC	S-80145CLMC-J16	
IC604	79040230	IC	TMP94CS40AF-1A58	
IC605	79040148	IC	V53C16128HK-30	
IC606	79040153	IC	MBM29F800BA55TN	
IC607	79040007	IC	TC7S08F	
IC608	79040153	IC	MBM29F800BA55TN	
IC609	79040007	IC	TC7S08F	
IC610	79040087	IC	TC7W241FU	
IC611	79040007	IC	TC7S08F	
IC902	79040102	IC	NJM2370U05	
IC903	79040227	IC	PLL1700E-T	
IC905	79040249	IC	TC7SH08FU	
IC907	79040266	IC	ZR38601	
IC909	79040130	IC	NJU6321PE-TE1	
IC910	79040087	IC	TC7W241FU	
		- TRANSISTORS -		
Q301	79050079	Transistor,Chip	2SA1213-Y	
Q302	79050043	Transistor,Chip	RN1402	
Q401	79050014	Transistor,Chip	HN1C03F	
Q501	79050015	Transistor,Chip	HN1B01F	
Q502	79050015	Transistor,Chip	HN1B01F	
Q601	79050031	Transistor,Chip	DTA114EKA	
Q602	79050031	Transistor,Chip	DTA114EKA	
Q901	79050043	Transistor,Chip	RN1402	
Q902	79050043	Transistor,Chip	RN1402	
		- DIODES -		
D501	79060022	Diode,Chip	1SS368	
D502	79060022	Diode,Chip	1SS368	
D901	79060022	Diode,Chip	1SS368	
D902	79060022	Diode,Chip	1SS368	
		- MISCELLANEOUS -		
X401	79089021	Oscillator,Ceramic	22.58MHz	
X601	79089022	Oscillator,Ceramic	9.00MHz	
X901	79089003	Oscillator	SMD49,27MHz	
! EU02	79085056	PC Board Assy	Power	
		- INTEGRATED CIRCUITS -		
! Q801	79040267	IC	FA7615CP	
Q821	79040146	IC	TA76431S	
Q824	79040268	IC	TA79005S	
Q826	79040222	IC	SI-3050CALF1101	
Q827	79040223	IC	SI-3033CALF1101	
Q881	79040146	IC	TA76431S	
Q882	79040269	IC	BA05T	
		- TRANSISTORS -		
! Q802	79050044	Photo Coupler	TLP621	
! Q803	79050082	Transistor	2SK2769	
Q822	79050005	Transistor	2SC2236-Y	
Q823	79050040	Transistor	2SA1048-Y	
Q828	79050076	Transistor	2SA1585STP-Q	
Q829	79050004	Transistor	2SC2458-Y	
! Q871	79050082	Transistor	2SK2769	
! Q872	79050044	Photo Coupler	TLP621	
! Q873	79050044	Photo Coupler	TLP621	
Q874	79050004	Transistor	2SC2458-Y	
		- DIODES -		
! D802	79060016	Diode	ERA15-06	
! D803	79060016	Diode	ERA15-06	
! D804	79060016	Diode	ERA15-06	
! D805	79060016	Diode	ERA15-06	
D806	79060009	Diode	RU-1P	
D807	79060013	Diode	AG01	
D808	79060064	Diode,Zener	MTZJT-77-18B	
D809	79060016	Diode	ERA15-06	
D810	79060012	Diode	ERA15-02	
D811	79060064	Diode,Zener	MTZJT-77-18B	
D812	79060064	Diode,Zener	MTZJT-77-18B	
D821	79060032	Diode	RK49LF-L1	
D822	79060010	Diode	RK46	
D823	79060008	Diode	RU2YX	
D824	79060013	Diode	AG01	
D825	79060013	Diode	AG01	
D826	79060013	Diode	AG01	
D831	79060007	Diode,Zener	UZ3.0BSB	
D832	79060034	Diode,Zener	MTZJT-77-10B	
D833	79060034	Diode,Zener	MTZJT-77-10B	
D834	79060005	Diode,Zener	UZ11BSB	
D844	79060004	Diode,Zener	UZ5.1BSB	
D871	79060009	Diode	RU-1P	
D872	79060012	Diode	ERA15-02	
D873	79060064	Diode,Zener	MTZJT-77-18B	
D881	79060013	Diode	AG01	
D882	79060013	Diode	AG01	
D883	79060013	Diode	AG01	
		- CAPACITORS -		
! C801	79020111	Cap,Film	0.22MF	M 270V
! C802	79020028	Cap,Ceramic	470pF	Z 250V
! C803	79020028	Cap,Ceramic	470pF	Z 250V
! C804	79020195	Cap,Film	0.1MF	M 275V
! C811	79020193	Cap,Ceramic	220pF	K 250V
		- RESISTORS -		
! R802	79030055	Res,Oxide Metal	1Mohm	J 1/2W
		- MISCELLANEOUS -		
! F801	79087001	Fuse	1.6A,250V	
! F821	79070061	Fuse	125V,3.0A	
! F822	79070054	Fuse	125V,3.5A	
! F823	79070054	Fuse	125V,3.5A	
! F824	79070055	Fuse	125V,2.0A	
! F825	79070055	Fuse	125V,2.0A	
! F826	79070055	Fuse	125V,2.0A	
! F827	79070055	Fuse	125V,2.0A	
! P802	79089113	AC Inlet		
! T801	79080006	Line Filter	253YOR7	
! T802	79010030	Transformer	SRW3020ED5-212	
! T871	79010029	Transformer	SRW2820ED5-207	
EU03	--------	PC Board Assy	Front	
		- INTEGRATED CIRCUITS -		
IC101	79040251	IC	TMP87CH75F-1J55	
		- TRANSISTORS -		
Q111	79050001	Transistor,Chip	RN2402	
Q112	79050001	Transistor,Chip	RN2402	
Q113	79050001	Transistor,Chip	RN2402	
		- DIODES -		
D103	79060022	Diode,Chip	1SS368	
D111	79060065	Diode,LED	MVL-354B	
D112	79060065	Diode,LED	MVL-354B	
		- MISCELLANEOUS -		
BZ101	79089086	Buzzer	HAS-RP2-14-41-11	
S105	79089020	Switch	Push	
S106	79089020	Switch	Push	
S107	79089020	Switch	Push	
S108	79089020	Switch	Push	
S110	79089020	Switch	Push	
S111	79089020	Switch	Push	
X101	79089095	Oscillator,Ceramic	8MHz	
EU04	--------	PC Board Assy	Power Switch	
		- TRANSISTORS -		
Q107	79050001	Transistor,Chip	RN2402	
		- DIODES -		
D106	79060035	Diode,LED		
		- MISCELLANEOUS -		
S113	79089020	Switch	Push	
EU05	--------	PC Board Assy	Output	
		- INTEGRATED CIRCUITS -		
ICS01	79040044	IC	NJM4580E	
ICS02	79040273	IC	NJM79M05DLA	
ICS03	79040272	IC	NJM78M05DLA	
ICV02	79040277	IC	AD8073JR	

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
ICV03	79040277	IC	AD8073JR
ICW01	79040274	IC	NJM5532M
ICW02	79040274	IC	NJM5532M
ICW03	79040274	IC	NJM5532M
ICW04	79040274	IC	NJM5532M
ICW05	79040274	IC	NJM5532M
ICW06	79040274	IC	NJM5532M
ICW07	79040274	IC	NJM5532M
ICW08	79040274	IC	NJM5532M
ICW09	79040274	IC	NJM5532M
ICW10	79040274	IC	NJM5532M
ICW11	79040274	IC	NJM5532M
ICW12	79040274	IC	NJM5532M
ICW19	79040274	IC	NJM5532M
ICY01	79040130	IC	NJU6321PE-TE1
ICY02	79040130	IC	NJU6321PE-TE1
ICY03	79040087	IC	TC7W241FU
ICY04	79040011	IC	TC7W04F
ICY05	79040270	IC	TC7WT74FU
ICY06	79040102	IC	NJM2370U05
ICY07	79040271	IC	DS9638CM
ICY08	79040275	Terminal,Optical	TOTX176
ICY09	79040087	IC	TC7W241FU
ICY10	79040087	IC	TC7W241FU
ICY11	79040278	IC	TA48M05F
ICY12	79040276	IC	AD1853JRSRL
ICY13	79040276	IC	AD1853JRSRL
ICY14	79040276	IC	AD1853JRSRL
ICY15	79040102	IC	NJM2370U05
ICY16	79040102	IC	NJM2370U05
ICY17	79040102	IC	NJM2370U05
ICY18	79040008	IC	TC7S32F
ICY19	79040258	IC	TC7SH86F
		- TRANSISTORS -	
QS01	79050079	Transistor,Chip	2SA1213-Y
QS02	79050083	Transistor,Chip	2SC2873-Y
QS03	79050043	Transistor,Chip	RN1402
QS04	79050001	Transistor,Chip	RN2402
QV01	79050018	Transistor,Chip	2SA1162
QV02	79050018	Transistor,Chip	2SA1162
QV03	79050018	Transistor,Chip	2SA1162
QV04	79050018	Transistor,Chip	2SA1162
QV05	79050015	Transistor,Chip	HN1B01F
QV06	79050018	Transistor,Chip	2SA1162
QV07	79050018	Transistor,Chip	2SA1162
QV08	79050015	Transistor,Chip	HN1B01F
QV09	79050015	Transistor,Chip	HN1B01F
QV10	79050015	Transistor,Chip	HN1B01F
QW01	79050014	Transistor,Chip	HN1C03F
QW02	79050014	Transistor,Chip	HN1C03F
QW03	79050014	Transistor,Chip	HN1C03F
QW04	79050014	Transistor,Chip	HN1C03F
QW05	79050014	Transistor,Chip	HN1C03F
QW06	79050014	Transistor,Chip	HN1C03F
QW07	79050043	Transistor,Chip	RN1402
QW08	79050043	Transistor,Chip	RN1402
QW09	79050014	Transistor,Chip	HN1C03F
QW10	79050014	Transistor,Chip	HN1C03F
QW11	79050001	Transistor,Chip	RN2402
QW12	79050001	Transistor,Chip	RN2402
QW13	79050012	Transistor,Chip	RN4601
QW14	79050012	Transistor,Chip	RN4601
QY01	79050043	Transistor,Chip	RN1402
QY02	79050001	Transistor,Chip	RN2402
QY03	79050001	Transistor,Chip	RN2402
QY04	79050001	Transistor,Chip	RN2402
QY05	79050043	Transistor,Chip	RN1402
QY07	79050079	Transistor,Chip	2SA1213-Y
QY08	79050012	Transistor,Chip	RN4601
QY09	79050012	Transistor,Chip	RN4601
QY10	79050012	Transistor,Chip	RN4601
QY11	79050001	Transistor,Chip	RN2402
QY12	79050001	Transistor,Chip	RN2402
QY13	79050001	Transistor,Chip	RN2402
QY14	79050012	Transistor,Chip	RN4601
QY15	79050012	Transistor,Chip	RN4601
QY16	79050012	Transistor,Chip	RN4601
		- DIODES -	
DS01	79060067	Diode	1SS362
DS02	79060067	Diode	1SS362
DV01	79060028	Diode,Chip	1SS226
DV02	79060028	Diode,Chip	1SS226

LOCATION NUMBER	PART NUMBER	DESCRIPTION	
DW01	79060022	Diode,Chip	1SS368
DW02	79060022	Diode,Chip	1SS368
DW03	79060066	Diode	1SS361
DW04	79060066	Diode	1SS361
DY03	79060022	Diode,Chip	1SS368
DY04	79060066	Diode	1SS361
DY05	79060066	Diode	1SS361
DY06	79060066	Diode	1SS361
DY07	79060066	Diode	1SS361
DY08	79060066	Diode	1SS361
DY09	79060066	Diode	1SS361
DY10	79060066	Diode	1SS361
		- MISCELLANEOUS -	
JV01	79089096	Plate,Jack	Video-S
JV02	79089114	Plate,Jack	Video
JW01	79089098	Plate,Jack	2CH
JW02	79089099	Plate,Jack	5.1CH
JY01	79089100	Plate,Jack	Digital Audio
EU16	--------	PC Board Assy	Sub Video
		- INTEGRATED CIRCUITS -	
IC001	79040253	IC	GMVLX1A-X
IC002	79040254	IC	GMAFMC
IC004	79040255	IC	GMCP1
IC005	79040256	IC	MSM54V25632A
IC006	79040257	IC	ADV7192KST
		- TRANSISTORS -	
Q001	79050043	Transistor,Chip	RN1402
		- MISCELLANEOUS -	
X001	79089108	Oscillator	24MHz
EU19	--------	PC Board Assy	Display
		- RESISTORS -	
RM01	79070484	Motor Assy,Loading	
		- MISCELLANEOUS -	
A101	79089107	Display,FL	20U47100SAN
MC01	79070482	Chassis Assy,Mechanism	
MC11	79070485	Gear,Pulley	
MC14	79070483	Belt,Loading	
MT101	79080140	Module,RMT	GP1U261X
SW1	79089111	Lever,switch	
SW2	79089112	Lever,switch	

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